# SOUTH ATLANTIC FISHERY MANAGEMENT COUNCIL

# JOINT MEETING OF SOUTH ATLANTIC AND GULF OF MEXICO SCIENTIFIC AND STATISTICAL COMMITTEES

## Webinar

## August 4, 2022

## Transcript

## SAFMC SSC Members
Dr. Jeff Buckel, Chair
Dustin Addis
Dr. Jie Cao
Dr. Chris Dumas
Dr. Eric Johnson
Dr. Yan Li
Dr. Genny Nesslage
Dr. Amy Schueller
Dr. Jennifer Sweeney-Tookes

Dr. Fred Scharf, Vice Chair
Dr. Walter Bubley
Dr. Scott Crosson
Dr. Jared Flowers
Anne Lange
Dr. Kai Lorenzen
Dr. Marcel Reichert
Dr. George Sedberry

## GMFMC SSC Members
Dr. Jim Nance, Chair
Dr. Mike Allen
Dr. David Chagaris
Dr. Benny Gallaway
Dr. David Griffith
John Kilborn
Dr. Paul Mickle
Dr. Will Patterson
Dr. Steven Scyphers
Dr. Richard Woodward

Dr. Luiz Barbieri
Harry Blanchet
Dr. Roy Crabtree
Doug Gregory
Dr. Mandy Karnauskas
John Mareska
Trevor Moncrief
Dr. Steven Saul
Dr. Jim Tolan
Dr. Sean Powers

## Council Members
Dr. Carolyn Belcher (SAFMC)

Dr. Tom Frazer (GMFMC)

## SAFMC Council Staff
Myra Brouwer
John Carmichael

Julia Byrd
Cindy Chaya

## SAFMC Council Staff (Cont)

Dr. Chip Collier

John Hadley

Allie Iberle

Julie Neer

Suzanna Thomas

Dr. Judd Curtis

Kathleen Howington

Kim Iverson

Nick Smillie

Christina Wiegand

## GMFMC Council Staff

Dr. Natasha Mendez-Ferrer

Jessica Matos

Dr. Carrie Simmons

Dr. John Froeschke

Ryan Rindone

## Attendees and Invited Participants

Shanae Allen

Dewey Hemilright

Chris Swanson

Meg Withers

Rick DeVictor

Ashley Oliver

Dr. Erik Williams

Additional attendees and invited participants attached.

The Joint Meeting of the South Atlantic and Gulf Council of Mexico Scientific and Statistical Committees of the South Atlantic Fishery Management Council convened via webinar on August 4, 2022, and was called to order by Dr. Jeff Buckel.

## INTRODUCTIONS

DR. BUCKEL:  Judd, do you want to say a few things to get us started, before I start?

DR. CURTIS:  Thank you, Jeff.  Good morning, SSCs and other staff.  My name is Judd Curtis, South Atlantic Council staff, and I just wanted to go over a few housekeeping issues for the meeting, before Jeff does his introductions.  As you know, the South Atlantic is assuming the lead role, and lead council, for this joint meeting.  As such, Dr. Jeff Buckel will be the Chair for the meeting, and Dr. Fred Scharf will assume the role as Vice Chair.

One difference from the Gulf of Mexico in the South Atlantic is we operate by consensus, and so there are no motions or voting, and you will see, as we work through our agenda on the joint agenda items, the southeastern yellowtail snapper interim analysis, that we'll have some action items on the screen that will be discussed, and then we'll come to a consensus and write notes, instead of doing motions or voting.

We'll use the South Atlantic ABC Control Rule in order to determine our P*, which has already been done, as you will see when we get into the southeastern yellowtail analysis snapper, and we'll explain a little bit more about the background information of how we resolve this issue.

Just some housekeeping, and please self-mute when you're not talking, to minimize the background noise, and then, if you raise your hand on the webinar, as you all have been doing for your check-ins, the raised-hand document will alert our Chair, Jeff Buckel, who will call on you to talk.  We have two council members in attendance, Tom Frazer from the Gulf of Mexico Council and Carolyn Belcher from the South Atlantic Council, and, Jeff, I think that's all I have for now, and I'll pass it on back to you, so you can do the introductions.

DR. BUCKEL:  Thanks very much, Judd.  All right.  Good morning, everyone, and thanks for attending today's joint meeting of the South Atlantic and Gulf of Mexico SSCs.  My name is Jeff Buckel, and I'm the current Chair of the South Atlantic SSC, and I will be -- As Judd mentioned, I will be chairing this morning's joint meeting.  Today, we're going to be reviewing the yellowtail snapper interim analysis and providing fishing level recommendations for yellowtail snapper.

Please, if you haven't already found it, the agenda is on the South Atlantic Council's SSC webpage. You can click on the joint meeting, and there's a button at the top that says, "Meeting Agenda", and that's where the meeting agenda is, and then the overview document, the meeting overview document, has been updated, and it's under the recent materials on the upper-right part of that page.

All right, and so I think, next, we will go ahead and do introductions from each member of the two SSCs, for voice recognition, and, Jim Nance, if you want to go ahead and start with your group, and we'll just go in the order of that right-hand column, starting with Jim Nance, and we'll get the Gulf of Mexico SSC members' voice recognitions now.

DR. NANCE:  Thank you.  Jim Nance, here.  Jeff, do you just want to -- Is each person just going to do their own, as they go down this list?

DR. BUCKEL:  Correct, and so, Luiz, if you could go ahead, and then Harry after Luiz.

DR. BARBIERI:  Sounds good, Jeff.  Good morning, everyone.  Luiz Barbieri, here.

MR. BLANCHET:  Good morning.  This is Harry Blanchet.

DR. CHAGARIS:  David Chagaris, here.

DR. CRABTREE:  Roy Crabtree, here.

DR. GALLAWAY:  Benny Gallaway, here.

MR. GREGORY:  Doug Gregory.

DR. GRIFFITH:  David Griffith, here.

MR. MONCRIEF:  Trevor Moncrief.

DR. PATTERSON:  Good morning.  This is Will Patterson.

DR. SCYPHERS:  Good morning.  This is Steven Scyphers.

DR. TOLAN:  Jim Tolan, here.

DR. WOODWARD:  This is Rich Woodward.

DR. MICKLE:  Paul Mickle, present.

DR. POWERS:  Sean Powers is here.

MR. MARESKA:  This is John Mareska.

DR. SAUL:  Steve Saul.  Good morning.

DR. KILBORN:  Josh Kilborn, here.

DR. KARNAUSKAS:  Good morning.  Mandy Karnauskas.

DR. ALLEN:  Good morning.  Mike Allen.

DR. CURTIS:  Any other Gulf SSC members online that we didn't highlight or hasn't checked in?  Okay.  All right.  Proceed, Jeff.

DR. BUCKEL:  Fred, if you want to go ahead.

DR. SCHARF:  Sure.  Good morning.  This is Fred Scharf.

MR. ADDIS:  Dustin Addis.

DR. BUBLEY:  Wally Bubley.

DR. CAO:  Jie Cao, here.

DR. BUCKEL:  Scott, we can't here you, if you're talking.  Scott Crosson.

DR. COLLIER:  I am not seeing him online right now.  He was online earlier.  There he is.

DR. BUCKEL:  Scott, are you there?

DR. CROSSON:  Yes, and I was muted.

DR. DUMAS:  Chris Dumas.

DR. FLOWERS:  Jared Flowers.

DR. JOHNSON:  Eric Johnson.

MS. LANGE:  This is Anne Lange.  Good morning, everyone.

DR. LI:  Yan Li is here.

DR. LORENZEN:  Kai Lorenzen.

DR. NESSLAGE:  Genny Nesslage.

DR. BUCKEL:  Marcel, we're not hearing you, if you're trying.

DR. COLLIER:  He was muted for a second, but he's been unmuted.

DR. REICHERT:  Marcel Reichert.  Good morning, everyone.

DR. SCHUELLER:  Amy Schueller.

DR. SEDBERRY:  George Sedberry.

DR. SWEENEY-TOOKES:  Good morning.  This is Jennifer Sweeney-Tookes.

DR. CURTIS:  Any other South Atlantic SSC members?  Alexei I think is the only one we're missing.  Fred Serchuk is not able to attend today's meeting.  Why don't we have our council representatives?

DR. FRAZER:  This is Tom Frazer, Gulf Council.

DR. BELCHER:  Carolyn Belcher, South Atlantic Council.

DR. CURTIS:  Great.  Thank you.

DR. BUCKEL:  All right, and I haven't scrolled through the other list, and do we have any -- Is NOAA Counsel -- Is Shep Grimes here?  We might want to recognize him, if he is.  Then also recognize our Southeast Fisheries Science Center representative, Erik Williams, and, Ryan, I don't know if you have any other non-SSC Gulf of Mexico representatives that you want to recognize.  Please do that now, if you have them.

MR. RINDONE:  We're breezing through the list, real quick.  Dr. Simmons, if you want to go ahead and recognize yourself.

DR. SIMMONS:  Good morning.  Carrie Simmons.

DR. BUCKEL:  All right.  Thanks, and, as Judd mentioned, we have one SSC member that let us know they wouldn't be in attendance, and that's Fred Serchuk, and it looks like Alexei is -- Hopefully he'll be able to joint us at some point here.  All right, and so there are -- As I mentioned, the updates to the agenda, or the overview, have been posted, and were there any questions related to the agenda or the overview?  If you have any, please raise your hand, and, Chip, do you have the raised-hand document?  Are you in charge of that?

DR. COLLIER:  I am.

DR. BUCKEL:  All right.  Thanks.  All right.  Seeing none, the agenda is approved, and we'll move on to the Public Comment item on the agenda, and so, if there is any public that would like to comment now, please raise your hand, and Chip will put your name on the Google doc raised-hand sheet.  Hi, Ben.  Please go ahead with your comment.

## PUBLIC COMMENT

MR. HARTIG:  Thanks, Jeff.  I didn't have any comments on this agenda item.  I just wanted to make sure that I was going to be able to comment before the presentation this afternoon, and that was the only thing that I wanted to say.

DR. BUCKEL:  I apologize, and I should have mentioned that the this -- The joint meeting is going to cover the yellowtail snapper, and then, after the yellowtail snapper interim analysis is reviewed, and fishing level recommendations are made, then the Gulf of Mexico Council is going to drop off the meeting, and then the South Atlantic Council will continue on with the review of Spanish mackerel, and so that's -- We'll get to that Spanish mackerel assessment review after the yellowtail snapper.

MR. HARTIG:  Thank you, Jeff, and that's exactly why I wanted to comment this afternoon.

DR. BUCKEL:  Yes, and it may be earlier, Ben, and you never know, right, and they're not two separate meetings, and so just stay tuned, in case we finish the joint meeting earlier than what's on the schedule.  Thank.

MR. HARTIG:  Believe me, I will.  Thank you.

DR. BUCKEL:  Thanks.  Any other public comment?

DR. COLLIER:  Thomas Newman had his hand raised, and also took it down after Ben had asked his question.

DR. BUCKEL:  Thomas, was that related to the Spanish mackerel?  Well, not hearing a response, maybe he's already dropped off and he also had a question about the Spanish mackerel assessment, and so all right.  If there is no further public comment -- Chip, if you don't see any other hands, then we'll move on to the next item on the agenda, which is the southeastern yellowtail snapper interim analysis, and we have Shanae Allen and Chris Swanson from FWC who are going to give a presentation, and that presentation is Attachment 3b in the documents.  I'm not sure if -- Shanae, are you going to start off, or Chris?

MR. SWANSON:  Good morning.  I will start off the presentation.

DR. BUCKEL:  Thanks, Chris.

## SOUTHERN YELLOWTAIL SNAPPER INTERIM ANALYSIS

MR. SWANSON:  Welcome, and thank you so much for joining us this morning, and so we're going to be talking about some of our favorite things and what we think about all day, namely the joyous amalgam of catching fish here and analyzing data, and so today's subject of interest is the yellowtail snapper and the S64 interim analysis.

We're going to break this presentation into two parts.  First, I will reorient you to relevant yellowtail history, to help frame our discussion, and then we'll move to some updates to the data, as requested by the TORs, and any updates to model configuration.  Lastly, I will share the results of the interim base model and go over some diagnostics that we use.  In the second part, Shanae will go over some sensitivity runs, to help address the TORs, and also address an index misconfiguration that we uncovered after the benchmark process.  She'll go over how uncertainty was characterized in the interim base model, stock status criteria, and, finally, the results of the various projection scenarios, as requested by the TORs, and so let's go ahead and dive in.

In 2023, an ICA model was developed for yellowtail, using data from 1981 to 2001, and the stock was found to not be overfished, nor undergoing overfishing.  In 2012, the model changed to the ASAP2 framework and extended the data to 2010.  Reference points also moved away from being MSY-based to SPR-based, and a minimum stock size threshold was established.  The stock continued to be estimated as not overfished, nor undergoing overfishing, but the ASAP Model 2 framework estimated a much larger stock size, and much lower fishing mortality rates, compared to the ICA model.

In 2020, Shanae and I developed a model in the Stock Synthesis framework, using data from 1992 to 2017.  During this time, the definition of MSST had also changed, as well as the use of three-year geometric means to define current status levels of stock size and fishing mortality rates.  The stock continued to not be overfished, nor undergoing overfishing, and the estimates of stock size and fishing mortality that were found in the SS model were closer to the initial estimates that were done from the ICA model.

This was just a model-bridging exercise that we did in the benchmark to understand why the ASAP2 model was providing estimates on such a different magnitude compared to the SSC and ICA models, and so, in the spawning biomass ratio plot on the left, you can see the ICA model in yellow, the SS model in orange, and then the gray line is that ASAP2 model from SEDAR 27A, and you can see the difference in magnitude here.

What we uncovered was a limitation of the ASAP2 framework, which constrained the number of weighted age matrices that one could use for each fleet, and so, when that constraint was removed in ASAP3, by having each fleet receive its own weighted age matrix and allow for different weights-at-age for landings and discards, the SEDAR 27A data was put into ASAP3, and the results are this green line that the model now estimated a stock size that corroborated more of the results of the ICA and the SS model.  This is the fishing mortality ratio plot, on the right here, and so that's the same type of results were -- The other three models kind of more corroborate one another, and then the SEDAR 27A ASAP2 model had much lower fishing mortality rates.

The current total ACL for yellowtail is about 3.9 million pounds.  About three-million pounds, or 77 percent, is allocated to the South Atlantic, and about 900,000 pounds, or 23 percent, to the Gulf.  Further, sector allocation, in the South Atlantic, is divided, where about 53 percent goes to the commercial, and about 47 percent goes to the recreational, but the recreational portion of the ACLs are based on the Coastal Household Telephone Survey and the results of the SEDAR 27A model and are not yet based on the FES and SEDAR 64 model, and so there's also been four brief commercial closures in recent years, 2015 and then from 2017 to 2019.

We're going to get into some of the data updates, and so, in the first TOR, it was requested that the landings and discard data for the three different fleets be updated from 2018 to 2020, and so, because it's just landings and discards data, no indices, nor any length and age composition data, were updated within the model, and so just to keep that in mind, and so, as was determined for the benchmark process, only landings and discard data from Florida waters were considered as input, and that decision was largely made because about 99 percent of landings and discards information is in Florida for yellowtail.

Just to kind of reorient you with some of the regions that we're talking about here, we have these five different regions that were broken up for Florida, based on the for-hire survey, and then you have your north of Florida region and west of Florida, which were not considered as inputs within the model here.

Commercial landings of yellowtail from 2018 to 2020 were obtained solely from Florida's Marine Fisheries Trip Ticket Program.  Landings for 2018 were initially provided to us, actually during the S64 data workshop, but were validated again for this interim analysis, and landings decreased to about 1.9 million pounds in 2018, after a time series high in 2017, but then increased slightly,

in 2019 to 2.2 million pounds. Then, in 2020, landings dropped to about 1.4 million pounds, as likely a result of the COVID-19 pandemic.

The pie charts on the right over here also show that the landings continued to be predominantly from the Florida Keys region, which is that gray-shaded area, and representing about 95 percent of the annual landings, and so this is 2018, 2019 in the middle, and 2020. During this time, commercial landings from the South Atlantic, which here is talking about the Northeast region, the Southeast, and the Florida Keys regions, and so they consistently comprised 99 percent of the statewide annual commercial landings.

Estimates of the MRIP landings of yellowtail snapper, which are the blue columns here on the left-hand plot, they were from shore, private or rental boats, and from the charter boat modes. The landings and the discard estimates were fully calibrated based on the APAIS and the Fishing Effort Surveys, and so, in 2018, the MRIP landings were estimated to be about 1.6 million fish, then decreased to about 800,000 fish in 2019, and then increased again to about 1.5 million fish in 2020.

The column graph on the right here shows that MRIP landings from 2016 to 2020 were predominantly from the Florida Keys and Southeast Florida regions, and they comprise between 91 to 97 percent of the annual landings, respectively.

Estimates of the headboat landings, which is the green line and the yellow triangles here, they were obtained from the Southeast Region Headboat Survey, but they were not given to us, or characterized, by region, and so the headboat landings continued to be a small component of the recreational yellowtail landings, and they were found to be about 113,000 fish for 2018, 241,000 fish for 2019, and about 169,000 fish for 2020.

In the S64 benchmark, commercial discards, which are the purple line with the orange diamond in this plot, they were obtained from NOAA's Coastal Fisheries Logbook Program, and the discards, like the landings, were initially provided to us during the S64 data workshop and were validated again for us here, at about 30,000 fish, but that was just for 2018, and so the discards for 2019 and 2020 were unable to be provided to us for this interim analysis, and were therefore assumed, based on an average ratio of discards to landings that was calculated using five years of data, and so we used from 2014 to 2018, and so this five-year ratio was calculated to be about 4 percent, and it was applied to the landings data for 2019 and 2020. Discards for 2019 were, therefore, calculated at about 38,000 fish, and 24,000 fish for 2020.

The estimates of the headboat discards were also a small component of the total discards, and about 46,000 fish in 2018, 62,000 fish in 2019, and about 45,000 fish in 2020, and it's the same color pattern, that green line with the yellow triangle here, and so you can see it's a pretty small component, from the graph. Discard estimates from MRIP, which are the blue columns, they comprise the largest component, and they were, in 2018, about 2.7 million fish, about 1.6 million fish in 2019, and back up to about 2.5 million fish in 2020, and so significantly much larger discards from the MRIP fleet.

For this interim analysis, a term of reference was included to evaluate any potential issues with the 2017 data, and specifically in the southwest region, and to determine whether special treatment would be appropriate, and so, going back to our earlier regional MRIP landings plot, we'll focus-in on the data highlighted here in red, and so the percentage of annual total catch for yellowtail

snapper, in the surrounding years, which is that 2015 and 2016 and then 2018 and 2019, for this region, they're, on average, about 2.7 percent of the annual, you know, Florida-wide total catches, but, in 2017, you can see it's about 10.9 percent, and so a bit of a jump.

While the variability in catch for this region was noticeably higher than surrounding years, you can also see that same level of annual variability within like the Southeast region, and, to a lesser degree, in the Keys region here.

The column plots, on the left, show the total number of positive yellowtail snapper trips and interviews conducted in each region of Florida, where the yellow portions correspond to southwest Florida. In 2017, a total of 354 trips, and 528 interviews, caught yellowtail snapper, and they're highlighted there in red, and so, of those, thirty-three trips, and fifty interviews, which make up about 9 percent, were sampled in southwest Florida, which you can see isn't too different than the surrounding years here, and so, of those thirty-three trips, which are tabled on the right by wave, more than half of the estimated total catch came from about five different trips throughout the year, and they're highlighted in yellow here, and so these are total catch values, with the summed column on the right.

The catch rates associated with each of these was well over 2,000, and so pretty much ranging from about 2,900 to 4,100, and so the results of this handful of high catches and releases, along with the high catch weights, was elevated landings and release estimates, when compared to the neighboring years.

It was the opinion of the analytical team that these data were reflective of inherent variability when estimating landings and discards in a large region, mainly comprised of unfavorable yellowtail habitat, and so we, therefore, didn't alter the 2017 MRIP data when we input it into the interim base model, but a suggestion was made to replace the 2017 data in southwest Florida with a geometric mean, and so, to evaluate the impact of this, we did a sensitivity run, and that will be explained in more detail further on in the presentation.

Another TOR was included to investigate potential issues with the 2020 MRIP landings data, as there was, you know, some concerns of things like reduced sampling coverage, higher-than-usual boating activity observed during the pandemic, and that may have caused biases in the estimated landings and discards, and so, in 2020, the data contained a total of 489,000 positive interviews, where 295 of those, or 60 percent, were conducted by samplers with anglers who caught yellowtail, but 194 of them were imputed from APAIS data that was collected in 2018 and 2019 from the same strata of the missing 2020 data.

The original sample weights were also reduced by a favor of two, to account for using two years of data, and the column plot on the right here shows that imputation breakdown by year, where the blue are the non-imputed interviews and the orange are imputed. The column plot on the right now shows that imputation breakdown by region, and you can see about 40 to 50 percent of the data from each region was imputed, and imputations occurred in the all the regions where positive interviews were attained, and the largest amounts occurred, as you can see, in the Florida Keys and southeast Florida regions.

Since the landings and discard data for 2020 were consistent with recent years, and the reviewed methods of imputation seemed sufficient for yellowtail, we also didn't alter, you know, the landings and discard data, and we used them as inputs into the interim base model.

Some configuration information, and a lot of the configuration of the S64 base model remained unchanged when we updated to the interim base model, and so, in this part, I will just kind of briefly touch on some things before moving on to the model results. The IBM was developed in Stock Synthesis, and we updated it to Version 15. It was of moderate complexity, now with, obviously, the terminal year of 2020, and it was a one-season, one-area model, with spawning and settlement in January, and it was a combined sex model with female-only spawning stock biomass.

No changes to the life history information occurred, and so growth was still estimated using the von Bertalanffy growth model, and no significant changes to these growth parameters occurred with the new input data. There are still twenty ages in the model, and natural mortality and maturity are still fixed vectors by age, and fecundity is still equal to the spawning biomass at-length, and the length-weight relationship is fixed in the model.

This is just kind of a visual breakdown of the different data components in the model, and so you can see, at the top and at the bottom, the catch and discard information was the only thing that was extended for 2018 to 2020, and so, again, no abundance indices or length or age composition data were extended past the terminal year of 2017 from the S64 base model.

There was a little bit of updates to the recruitment dynamics, and so we're still estimating a Beverton-Holt stock-recruitment relationship within the model, and all three parameters of R0, sigma R, and steepness are still being estimated within the model. There are still no sum-to-zero constraints on the recruitment deviations. Early recruitment deviations occurred from 1981 to 1990, which is our period of lower data richness, and then the main recruitment deviations were extended to 2020. The other thing that was updated was the bias adjustments, which follow the recommendations from Methot and Taylor 2011. These were updated within the IBM.

With the addition of the new data, now eighty-eight out of 120 parameters are estimated, but no changes to parameter status, like if it's fixed or estimated, occurred, and newly-estimated values were also found consistent with those estimated in the S64 base model, and so no priors were added to parameters, and the three symmetric betas that were originally applied to the initial fishing mortality rates of the three fleets remained. No additional lambdas were placed on data components, apart from those originally applied to the initial equilibrium catch values of the fleet, and fishing mortality rates still track age-four fish.

Model convergence criteria was assessed using total likelihood, the presence of an inverted Hessian matrix, and a maximum gradient less than one-times-ten to the negative-four. Landings, discards, except for the commercial discards, and the indices all assumed a lognormal error structure, and while the length and age composition data assumed a multinomial distribution. The length and age composition data were still iteratively reweighted, using the Francis method, and were updated, within the IBM, with no significant changes occurring.

In this section, I'll only be presenting results from the fits to the landings and discards data, as well as like the estimated recruitment, because there was no significant change in the fits to the indices and the composition data compared to the S64 base model, and so the landings in the SS model

are fit exactly as specified for each fleet, and so they look exactly like what I presented earlier, where the units are metric tons for commercial and numbers for the two recreational fleets, but, you know, in this plot, I wanted to show the recreational landings, in pounds, as estimated by the IBM, alongside the commercial landings, and so you can see, in the blue line here, commercial landings are usually a little bit above the recreational MRIP landings, which are in green there, and then the headboat landings are a much smaller component, down in the yellow.

This landings plot looks at the differences between the recreational landings in weight and the differences in how they are as received from our data deliveries, or queries, versus what the model estimates as those landings in weight, after converting them from numbers, and so the dotted and the dashed lines, here in the plots, are the corresponding data, either delivered or queried, while the solid lines are the values estimated by the interim base model for each fleet, and so you can see, between the MRIP and the headboat, there is reasonable agreement between them, with a little more differences here.

These are the discards for the commercial fleet, and you can see this was as in the S64 base model, and so there's a bit of underfitting occurring in the earlier years, and then it kind of switches to, you know, overestimating them in the latter years, with 2018 to 2020 data included in this. The CVs for this are, you know, really large, as you can see, and so this is the only fleet that doesn't have the lognormal error structure.

For discards for MRIP on the left and headboat on the right, they're still reasonable fits. The 2018 to 2020 data were fit pretty close to the observed values, which are the -- The observed values are the open circles with the error bars, and then the fitted data is the blue lines here, and so you can see reasonable fits for the updated data.

This is the estimated recruitment on the left, and then the recruitment deviations on the right, and so the main takeaway to see here is that, you know, for the last several years, basically from 2017 and 2018 onward, the error bars get much larger, because there is now no longer index information, or indices informing this information, and so, you know, the error bars are much larger. The RVC juvenile indices terminate in 2016, and then the MRIP and the commercial CPUE indices terminate in 2017, and so, for the most part, the fits are -- I'm sorry. The model is not really deviating from the stock-recruitment relationship here, and so it was pretty flat.

These plots are the estimated total biomass on the left, and spawning stock biomass on the right, in metric tons, and I apologize that they're not -- I didn't have a chance to update them into pounds, but you can see, with the addition of the updated landings and discards data, that the trends begin to decline slightly. These are the numbers-at-age and the spawning-stock-biomass-at-age, and so, on the left, you can see that they're primarily ages -- Number-wise, they are primarily ages-zero to three, which is that blue to yellow line here, or colors here, and then, biomass-wise, on the right, they are primarily ages-two to six, which is that gray to purple.

These are the estimated fishing mortality rates, and you can see, in the plot on the left, that age-four Fs have been relatively stable since the early 2000s. On the right are the apical Fs, which represent the instantaneous fishing mortality level on the most vulnerable age class for each fleet, and so this is a bit flip-flopped from our earlier plot, which looked at fleetwide landings in weight and showed more landings occurring from the commercial fleet. The MRIP fleet targets younger fish and discards a lot more fish compared to the commercial fleet, and so, while the estimated

MRIP landings, in weight, are usually lower than the commercial fleet, and younger fish weigh less, there is also like far more estimated dead discards occurring from the MRIP fleet and contributing to these higher F rates.

Lastly, these plots are the comparisons between the interim base model, which is the blue line, and the S64 base model, which is kind of red, or magenta, line, and they just help show that the addition of the 2018 to 2020 landings and discards data didn't create, you know, additional conflicts when setting the data, and so historical estimates of stock abundance, which is up in the upper-left-hand corner, or age-four fishing mortality rates, which is in the upper-right-hand corner, their respective reference points, and any of the age-zero recruitment information, which are the bottom-two panels, and they were all found consistent between the two models.

We'll start the final portion of Part 1, and so, in the interim analysis report, we provided like a cornucopia of model diagnostics, and so, in the interest of time, I'm not going to be presenting everything therein, but I'm going to show like one or two things from each of the four frameworks that were discussed there. In addition, several of the diagnostics look at indices and composition data, which, if you recall, were updated in the additional years of this interim analysis, but we felt the diagnostics performed here were relevant and informative, and so we also performed them on the S64 base model, after the benchmark process, and so the results that we'll be presenting here largely corroborate, you know, those findings.

The first thing that we looked at was model convergence, and we found, again, no estimated parameters on the bounds, and so we had a low final gradient, and our Hessian was positive definite, and so we could check that box. We also performed a jitter analysis, where we performed 200 jittered runs, where the initial values were jittered by 20 percent. 112 of those runs had a high gradient, and fifty-eight runs didn't have a positive definite Hessian. However, none of the jittered runs contained a total likelihood which was lower than the interim base model.

We filtered the jittered runs to include only those which had both a small final gradient and a positive definite Hessian, to try and indicate and get at some more plausible alternative model solutions, and so you can see, from the plot on the upper-right, we had a total of eighty-five runs that remained, and whose results suggested that the IBM had converged on a global solution, and so, in that plot, the dotted-blue line here is the interim base model likelihood, and the gold bars are the various jittered runs which met those filtered criteria.

Next, we looked at how well the fits to the index and length composition data were, and so this shows the results of the runs test, which were performed on both the indices and the length composition data. The residual series of all the indices, except for the commercial CPUE, passed the runs test. The commercial CPUE had two years where the residuals were greater than three standard deviations, which you can see, in those red circles, and several years which were sequentially positive or negative, and so, from 2005 to 2011, they were sequentially positive, and, from 1993 to 1998, they were sequentially negative.

Additionally, when this index was removed from the S64 base model, in the jackknife analysis that we did in the benchmark, it had very little impact on the estimates of spawning stock biomass, whereas, in contrast, the MRIP CPUE index, which passes the runs test here, when that was removed in the jackknife, it impacted the scale of spawning stock biomass in recent years, and just further suggested that the IBM was responding more to this index.

All but one mean length residual series passed the runs test, and so the mean length residuals of the headboat fishery failed, as most of the years exhibited some non-random variation, which is a little hard to see in this plot, because the residuals, positive or negative, are pretty small, but, basically, from the years 1992 to 1997, they were sequentially positive, and then, for about ten years, eleven years, from 2000 to 2011, they were sequentially negative, and so the length composition data of the headboat fishery may also be conflicting with similar length composition data from the other fleets, along with maybe the RVC adult and MRIP CPUE indices. That might lend to why the fits aren't very good to that.

Lastly, the joint residual plots for both the indices and the mean length composition data indicated a pretty good fit, as the combined mean squared error values were 0.191 and 0.035, respectively, and the residual variability of the indices generally decreased over time, which you can see, from the lowest smoother, that black line through it, and also from the size of the box plots there. The interquartile ranges were greater in the early 1990s, due to that initial conflict between the MRIP and the commercial CPUE indices, but it gets smaller as indices, you know, increased in agreement, moving forward in time. The residual and interquartile ranges of the mean length data were pretty small and consistent across time, just indicating general agreement with the fisheries and index data as well.

We also looked at various aspects of model consistency and began with a likelihood profile, which helps see how information sources can influence model parameter estimates, and so we profiled the R0 parameter, because it's largely regarded as a global scaling parameter, and the results suggested that the parameter is largely influenced by the recruitment deviations component of the interim base model, and so we're not presenting the results from the age-structured production model, but the results of that analysis largely corroborate the profile here, and so namely that -- You know, for most of the time series, there is enough information, in both the catch and index data, for that production function to largely drive the stock dynamics and for the model to be informed enough about scale.

When the recruitment deviations were included in the age-structured production model, fits to all the indices were improved, and the estimated spawning stock biomass became very similar to what was estimated in the full model, the interim base model.

The IBM was also subject to a retrospective analysis, which removed about five successive years of data from the model and are shown as color-coded solid lines in the plot on the right, and so, by iteratively removing data associated with the model's terminal year, it can help elucidate the effects of the final year on the model results, and so, if the results of this analysis show consistent patterns with each peel, it can be an indication of model misspecification or temporal dynamics, and so an evaluation was performed, through visual inspection and the use of the Mohn's Rho metric.

Here, as what we did in the benchmark process as well, we used the rule-of-thumb Rho values of negative-0.15 to 0.2, and that was proposed by Hurtado-Ferro et al. in 2015 for these longer-lived species, to characterize any retrospective bias. No discernable patterns were evident in the estimates of SSB or fishing mortality rates, after removing these successive years, and all the runs converged, and no parameters were found on the bounds. The calculated values from Mohn's Rho, which are labeled at the top of each panel, were for SSB, negative-0.03, and, for age-four Fs, it was 0.03, and so they fell well within this acceptable range.

The predictive skill of the IBM was evaluated, to check whether the model's predictive capacity was consistent with future reality, and so a retrospective forecast was performed by adding some model-based hindcasts to each of those five-year peels, and then a forecast bias was computed to gauge the model performance and consistency when adding data, and so the retrospective forecasting showed that one-year forward projections, which are the small circles projecting from the dotted lines in the plots, they were consistent with the overall estimated trend in the reference IBM, which is that dark-blue line, and each of the peels and forecasts were found to fall within that shaded 95 percent confidence interval of the reference IBM.

The forecast Rho values, which are labeled at the top in parentheses there, for SSB, it decreased slightly, to about negative-0.04, and it increased slightly, to 0.05, for age-four F, and so they're still within that rule-of-thumb range and suggest that there is model stability with the historical data, as well as consistency when subsequent data become available.

Lastly, we utilized the hindcast cross-validation technique, which compares observations to their predicted future values, and this was applied to both the indices and the length composition data. The predictive skill was evaluated based on the mean absolute scaled error, which is the MASE value, which they indicate whether the average model forecasts are better or worse than a random walk, and so MASE scores which are greater than one indicate average model forecasts are worse than a random walk, and so they don't have any predictive skill, but MASE scores of like say 0.5 would indicate that the model forecasts like twice as accurately as like a random walk and 90th baseline prediction, and so, thereby, it contains predictive skill.

In order to have sufficient observations in this, because we're without updated indices and composition data, a hindcast and cross-validation of the terminal eight years of data was performed, and so this is the five years of the retrospective from the base model, plus the three years of extra data that was added in this IBM, and so this resulted in five observations to predict the commercial and the MRIP CPUE indices, but only two observations for the RVC juvenile and adult indices, which is due to the biennial timing of the survey, and so both the RVC adult and MRIP CPUE indices had MASE scores which were less than one, which suggested that the IBM contained reasonable prediction skill for these, when compared to like a random walk.

The MRIP CPUE contained the lowest MASE score of 0.64, and so indicating that it has an ability to predict nearly twice as accurately as a random walk. The model also exhibited predictive capacity for the all the mean length data sources, which are on the right-hand side, with the exception of the RVC juvenile length dataset, which had a MASE value of a little over two. The next section will address like the sensitivity runs, et cetera, Part 2, and so I will hand over control now to Shanae to pick up that part of the presentation.

MS. ALLEN: Hello, everyone. I'm happy to be here today, virtually at least, and, unless there are any questions, I will dive into the rest of the presentation. First, I will start with the results of two sensitivity runs, and so included in the first TOR was to evaluate the impact of the elevated MRIP landings and discards data in the southwest region.

To do this -- Well, Chris mentioned previously that the reason for this was that the percent of total catch for yellowtail snapper from 2015 to 2016 and 2018 to 2019 in the southwest quota region was, on average, 3 percent of Florida-wide total catches, but, in 2017, it was about 11 percent.

Alicia Gray from SERO also investigated this further and found that the landings in 2017 exceeded more than two standard deviations from the mean in multiple waves, Waves 1, 3, and 6, compared to landings from 2014 to 2020.

To test the effect of these abnormally-high landings, we replaced the southwest Florida landings and discards in 2017, shown here, to be -- These are over 300,000 fish landed, and over 100,000 fish discarded, with the geometric mean of landings and discards from 2015, 2016, and then 2018 and 2019, and this reduced landings to about 45,000 fish and discards to about 33,000 fish, and then, in effect, Florida-wide landings for 2017 were reduced from about 1.5 million fish to around 1.3, and discards were reduced from about 2.3 million to about 2.2 million, and so these imputed values were then used as sensitivity run inputs, and we evaluated the effect on model results.

This figure is similar to the one that Chris showed earlier, and so the sensitivity run results are in blue, and the base model results are in red, and, starting from the top-left, you can see that spawning stock biomass changes very little, as do fishing mortality rates, in the top-right. Of course, fishing mortality rates in 2017 were slightly lower in the sensitivity run, as expected, and there were also no observed differences in estimated reference points, shown by the dotted line, and, lastly, the bottom-left and bottom-right plots show that estimated recruitment values and deviations were also very similar, and recruitment, in the bottom-left there, was slightly higher in 2016, in the sensitivity run, but still well within the bounds of uncertainty.

Just to summarize, when the MRIP data for 2017 in the southwest region were altered, the impacts to the model were negligible, and changes to stock abundance, fishing mortality, and recruitment were all well within the confidence intervals of the base model, and so we felt that the variability in the MRIP data for the southwest region was, again, reflective of estimating catch in this very large region with mostly unfavorable yellowtail snapper habitat, and, also, these data were approved for use during the SEDAR 64 data workshop, and so, therefore, we did not alter the 2017 MRIP data in the base model.

The next sensitivity run was to address this issue that, after the benchmark assessment was completed, we discovered that the MRIP CPUE index was mischaracterized in the stock assessment report, and also in the related working paper, as a total catch per trip index, but, in fact, it was total catch per angler, and so this -- The definition of the MRIP CPUE of total catch per angler is consistent with SEDAR 27A, which is the previous benchmark, but the benefit of using catch per trip is that it accounts for the correlation in catch rates within trips.

For the sake of transparency, and, also, given the level of influence that the MRIP CPUE index had on both the SEDAR 64 base model and the interim, we ran a sensitivity run with the MRIP CPUE index configured as total catch per trip. When this index was configured as total catch per trip, it's shown here as a sensitivity run in blue, and so, on the upper-left-hand side, the upper-left plot here, you can see that the trend in the fit to the index became flatter, and this, in turn, had a similar effect on the estimates of spawning stock biomass, shown here in the upper-right, and so the model fits to this index, and the corresponding estimates of stock abundance, were higher for the years 1994 to 1999, but lower in recent years, and so 2014 to 2020.

This trend has been reversed for the age-four fishing mortality rate in the bottom-left here, and the lower spawning stock biomass also corresponds to lower estimates of recruitment, from about 2012 to 2020, shown in the lower-right, and so management reference points, however, which are

shown in the dotted lines, those did remain unchanged, and, also, even those these results differ, most of them did fall within the uncertainty bounds of the base model.

Again, just a summary of this sensitivity run. When the MRIP index was changed from catch per angler to catch per trip, it was found that -- The interim model was found to be moderately sensitive to this index and the reconfiguration. We did expect this, because the trends in stock abundance for the SEDAR 64 base model and the interim were shown to be most informed by this index, and we showed this in the jackknife analysis that Chris mentioned, and so there were no changes to the management reference points, and results were mostly within uncertainty bounds, but it did result in the reduction and the estimated scale from 2014 to 2020 and indicated that the stock may be approaching the target spawning stock biomass and the MFMT. If there are no questions, I can move on to how we characterized uncertainty.

DR. CURTIS: I don't see any hands raised. We've got one hand up. Doug Gregory has his hand up.

DR. BUCKEL: Doug, go ahead.

MR. GREGORY: Thank you. On the CPUE, you said that the angler catches are correlated, and is that because, if there were four anglers on a trip, they would all tend to catch either well or not so well together, or was the angler index based on like the average catch per trip times the number of anglers? Is it an average of the angler catches, or is it each individual angler catches that were the concern?

MS. ALLEN: The original configuration of the MRIP CPUE, what was indeed used in the previous benchmark, was catch per angler, and so each angler was treated as an independent observation, the catch, catch rates. When we switched to catch per trip, we summed catches within a trip, and, also, we used covariates, such as the number of anglers on that trip, average hours fished across anglers on that trip, and does that answer your question?

MR. GREGORY: Yes, and so you did use the covariates. All right. Thank you.

MS. ALLEN: Yes. We did -- Both of the indices had the same model structure, the same uncertainty structure, which was a -- That was the binomial lognormal model. If there aren't any questions, I can move on to the MCMC analysis.

DR. CURTIS: Shanae, I'm not seeing any other hands raised, and so you may proceed.

MS. ALLEN: Great. We performed an MCMC analysis to generate posterior distributions of multiple parameters and derived quantities, shown here, and, to do this, we ran two chains that had 2,000 saved iterations in each, and that was after fitting and a burn-in that was set at 1,000, and then we assessed convergence of these chains, using Gelman and Rubin's potential scale reduction factor and, also, visual inspection of the trace plots. We confirmed that the scale reduction factor was close to one and that the effort confidence interval was less than 1.1 and included one.

These plots show the posterior distribution in gray for several quantities as well as the 25th and 75th percentiles, in the dotted-blue lines, and the median of the distribution is in the solid blue line. I'm sorry. It's the long-dashed line. My apologies. The maximum likelihood estimate from the

interim base model is shown in black, and these colors should probably be switched. It's a little bit confusing here, I see, and there are some differences between the median of the posterior distributions, in blue, and the base model estimates, in black, but the scale, particularly for F 30 percent SPR, the MFMT, in the upper-left-hand corner here, but the scale of the X-axis exaggerates these differences, and so if you see that only ranges from 0.41 to 0.45, or 0.46.

Another thing to note is that there is a very narrow distribution from the equilibrium OFL, which is in the top-right, and that's the retained yield at F 30 percent SPR, and the interquartile range for this distribution is about 1,500 to 1,650 metric tons, or about 3.3 million pounds to 3.6 million pounds, and this distribution had a CV of about 0.08, and so just to point out that there are many sources of uncertainty that are not included in this distribution, such as the uncertainty surrounding natural mortality, for instance.

The bottom-left and bottom-right plots show the distributions of spawning stock biomass at F 30 percent SPR and the MSST, which is 75 percent of the spawning stock biomass at F 30 percent SPR. Overall, the MCMC distributions are not heavily skewed, and they match up pretty well with the base model estimates.

To determine stock status, first, shown here in the plot on the left, it shows the estimates of spawning stock biomass relative to the spawning stock biomass target and MSST, and the vertical lines represent the approximate 95 percent confidence intervals, and so, to determine whether the stock is considered to be overfished, the geometric mean of the spawning stock biomass from 2018 to 2020, shown here by the red line, is compared to the MSST, and, also, on the right, the posterior distribution of the current level of spawning stock biomass, relative to the MSST, is shown here, and you can see that this distribution does not overlap one, and the current spawning stock biomass is, on average, almost two-times the MSST, and so the stock is not considered to be overfished.

To determine if the stock is undergoing overfishing, we compared the current age-four fishing mortality rates to the MFMT, which is the fishing mortality rate at F 30 percent SPR, and so, similar to the previous plots, the plot on the left shows the historical and current estimates of fishing mortality rates, with the approximate 95 percent confidence intervals, and also the MFMT.

The current fishing mortality rate, in red, is the geometric mean, again, from 2018 to 2020, and the posterior distribution on the right is the current level relative to the MFMT, and, again, this distribution doesn't overlap one, and the current fishing mortality is, on average, almost seven-tenths of the MFMT, and so, therefore, the stock is not considered to be undergoing overfishing.

Here, I will present the stock status determination criteria table for your reference, and the MFMT is about 0.43, whereas the fishing mortality rate associated with a P* of 0.375 is about 0.42, and note that these values are quite a bit higher than the current F, which is about 0.3. Below this are the values for MSST, SSB at F 30 percent SPR, and the current SSB are all shown, and, also, the equilibrium OFL and the equilibrium ABC, based off of the fishing mortality rates associated with the P* value, at the very bottom there. The last section of this presentation is projections, and so I can take any questions now, before moving on to presenting the projections.

DR. COLLIER: Sean Powers has a question.

DR. POWERS:  Thanks.  I was wondering, and, compared to the previous assessments, did -- Are you defining the fishing mortality the same way you said it's only on age-four, and you're using, I guess, the apical on age-four?

MS. ALLEN:  That's correct, yes.  That's remaining the same.

DR. POWERS:  Okay.  All right.  Thank you.

MS. ALLEN:  So we ran 100-year deterministic projections, and they were performed to reach equilibrium, but only the results are shown from 2021 to 2031, and so ten years, post the terminal year, and we ran several constant F and constant catch scenarios, to satisfy the second TOR.

Just, as an overview of the projection model that we used, the structure, and the parameters, of this model are the same as the assessment model, and selectivity for each fleet was taken from the terminal year of the assessment.  The recruitment, in the first year of the projection, and so 2021, that's based on the stock-recruit relationship, as estimated by the assessment model, and that is about 17.792 million fish, which is almost identical to the average over the entire time series, and very close to the recent three-year average, which is 17.1 million.

We used an iterative method that specifies fishing mortality rates for each fleet per year.  The R script for this method was provided by the Center, and it has the added benefit of being able to set fleet allocations each year, and so, since the base model is not spatially explicit, we chose to keep the fleet allocations set according to those in the South Atlantic, which is 52.56 percent commercial and 47.44 percent recreational.

The constant fishing mortality rate scenarios that were specified in the TORs are F at 30 percent SPR, which is about 0.3, and that is shown in the red on the plot on the right, and the associated -- The F associated with a P* of 0.375, which is nearly the same, about 0.42, and that's in the greenish line, and so you can see that these values -- How they correspond to historical fishing mortality rates that were estimated in the base models, and, also, that they're quite a bit higher than the recent average, and the first five years of the projection is shown in the green-highlighted region here, the 2021 to 2025.

There were two additional constant fishing mortality rates that weren't specified in the TORs, but they are included in the extra slides, if anyone is interested, and these are the 90 percent of F 30 percent SPR, and also 75 percent of F 30 percent SPR, and so projected recruitment, in millions, is shown here for each scenario, and they are nearly identical, as you can see, and they overlap, and they are close to the long-term average recruitment, and so, from this plot, you can also see the recent recruitment peak from 2011 to 2014.

This plot shows the projected spawning stock biomass, in millions of pounds, for the two scenarios, along with the base model estimates in black.  The two scenarios are very similar, again, and quickly approach the spawning biomass target, but the F 30 percent SPR scenario reaches that the target a little sooner than the P* scenario.

Again, these two scenarios lead to very similar yield streams, but the F 30 percent SPR scenario, in red, leads to slightly higher yields, as we would expect, and so, in both scenarios, retained yields

decline quickly to the equilibrium values, and these values are presented in a table form in the next slide that I will show.

This is a big table with a lot of columns, but the first two columns are just the tabulated values for each scenario, the retained yield, in pounds, by year, followed by the ratio of the ABC to the OFL, and these range from about 98 percent to 99.5 percent in the five years after the terminal year. Then, the commercial ACL and the recreational ACL, those are shown, and they follow the allocation, again, that is currently put in place in the South Atlantic, and so about 53 percent for the commercial and 48 percent recreational.

At the very bottom of this table, highlighted in orange, are the annual OFL and ACLs, averaged over three and five years, and then, at the very bottom is the equilibrium OFL value, and so all of these are run as constant catch scenarios, which I will present if there are no questions at this point.

DR. BUCKEL: Shanae, I don't see any questions at this point, and so please proceed. Thanks.

MS. ALLEN: Okay. Here is the retained yield associated with each constant catch scenario, and those are also shown alongside the historical estimated retained yields in black from the base model, and so the first set is based on a three-year average, under F 30 percent SPR and the P* scenario, and those are in red and the greenish-yellow lines, and then below that are the five-year average, in the green and blue lines, and the last scenario is the equilibrium catch associated with F 30 percent SPR, and this, of course, results in the lowest yield, in the purple.

The effect on fishing mortality rates, under these different constant catch scenarios, was that both the three and five-year averages exceed the MFMT by about 2024, earlier for the three-year average, and the equilibrium scenario does not. As you can expect, then the projected spawning stock biomass declines under the three and five-year average scenarios to the target, after about five or six years into the projection, which is 2025 or 2026, and then it reaches the MSST in 2029 or 2032, and so fishing at the equilibrium OFL does reduce spawning stock biomass, but only gradually, and it does not reach the MSST within this ten-year period.

Lastly, recruitment, under these various constant catch scenarios, are all fairly constant, and that's due to the constraints of the projection and the lack of information we have about recruitment in the future, but you can see that the three and five-year average scenarios do lead to slight declines. This concludes our presentation, and thank you all for listening, and we welcome your feedback and questions.

DR. BUCKEL: Thanks, Shanae and Chris. That was an excellent presentation, very thorough, and I appreciate you letting us know when you were addressing a TOR, because that's one of our action items, and so that was super helpful. Since it's about 10:30, and we're about halfway through our allotted time, let's do a five-minute biological break, and so I've got 10:27, and we'll come back at 10:32, and then we'll take public comment, and then we'll get into clarifying questions from the SSC members on the presentation. All right, and so we'll come back at 10:32, everyone. Thanks.

(Whereupon, a recess was taken.)

DR. BUCKEL:  I've got 10:32, and so welcome back, everyone.  Chris and Shanae, are you back and ready for questions?

MS. ALLEN:  Yes.

MR. SWANSON:  Yes, I'm here.

DR. BUCKEL:  Excellent.  Thanks.  So the first -- The next item on the agenda is to take public comment on the presentation, and so please raise your hand if you would like to make a public comment.  Chip is not seeing any hands, and I'm not seeing any either from members of the public, and so we'll go ahead and open up questions, clarifying questions, to SSC members, and so please raise your hand, and Chip will put you in order on the Google doc page there on the screen.

Chris and Shanae were that thorough, and no questions.  I will kick one off, just to clarify, and so you found a mistake in the MRIP index calculation, and thanks for doing the sensitivity on that, and I just wanted to confirm the -- So what is used for the interim analysis is still the catch per angler, or is it the catch per trip?

MR. SWANSON:  For the interim analysis, it's still the catch per angler, because that was what was done in the benchmark, and so none of the indices changed for the interim base model, compared to the benchmark, and so that was the point of doing the sensitivity run, where we actually changed that configuration of the CPUE index.

DR. BUCKEL:  Yes, and that's what I had taken away, Chris, and I just wanted to confirm that, and so thank you.  Marcel.

DR. REICHERT:  Again, thank you for the presentation, and I have a quick question, and you may have addressed that, but, although the SEDAR 64 and the updated model corresponded well, and the retrospective analysis didn't show significant concerns, as far as I could see, but could you please remind me why the abundance indices were not extended?  In particular, was it a practical or a modeling consideration, or was it, for instance, data-related, and I may have missed that.  You may have addressed it.  Thanks.

MR. SWANSON:  Do you mean why weren't the abundance indices extended for the interim analysis?

DR. REICHERT:  Yes.

MR. SWANSON:  That was a decision from the TORs, and so, when this was all put together, in the interest of time and resources, because yellowtail -- This was kind of -- Well, basically, that was just all that was requested, was the landings and the discard data be updated, and so --

DR. REICHERT:  Okay.  Thank you.

DR. BUCKEL:  Ryan.

MR. RINDONE:  Thanks, Dr. Buckel, and hi, Marcel.  It's been a long time.  When we were working with -- When the councils were working with FWC, to try to figure out the resource

requirements, in order to be able to update this, so the councils could take some sort of management action to move forward with yellowtail, we just had to be considerate of other things that were on FWC's plate, in terms of its assessment load, and we're thankful to them for being able to carve out some time to do this, and it did result in us having to push back mutton snapper by just a little bit, as a result, but the data that we were working off of for yellowtail were through 2017, and, of course, here it is 2022, and so it was good to get some more recent years of removals included in this analysis.

DR. REICHERT: Okay. Thank you. I appreciate that. Thanks.

DR. BUCKEL: Next, I see Roy Crabtree.

DR. CRABTREE: Thanks. Could you skip to the -- I think it was the last, or next-to-last, slide, and it showed the yields under the constant catch scenarios. It was one that showed that it seemed to lead to overfishing by 2024. Did I catch that correctly? Under those scenarios, the biomass is dropping off pretty quickly, I suppose?

MS. ALLEN: Yes, and those are shown in the next slide.

DR. CRABTREE: We're using -- What are we using for the recruitment estimates in the projections?

MS. ALLEN: They are purely deterministic, and it starts off, the first year, using the stock-recruit relationship that was estimated in the interim base model, and then it just follows the stock-recruit curve and is based solely on the spawning stock biomass.

DR. CRABTREE: Is it showing a sharp drop-off in recruitment and in projections? I mean, have we had relatively high recruitment recently, or do you know if there was a trend for that?

MS. ALLEN: The following slide also addresses that, and so, surprisingly, there is very little variation in recruitment, and, again, that's just because of the limitations of the projection model, and there is no stochasticity, but it doesn't decline very much, as you can see.

DR. CRABTREE: Thank you.

DR. BUCKEL: Next, I see Marcel Reichert.

DR. REICHERT: No, I don't believe so. It may have been a leftover.

DR. BUCKEL: Okay. All right. Paul Mickle, please.

DR. MICKLE: Thank you. Real quickly, on the first presentation, and I may have heard it wrong, but it sounded like the MRIP was the mail survey, but I may have misinterpreted that, on the 2018 to 2020 MRIP landing estimates that went into the interim analysis, and then, also, in Section 2.1.3, I have a question about the MRIP landings and discards. It says they were fully calibrated based on APAIS and FES, and my question is was it the MRIP calibrations that are done, or did FWC do its own calibration, and that may need clarification in the text. Thank you.

MR. SWANSON:  Paul, thanks.  For the landings data, these were just pulled from the query for this interim analysis, and so we did not perform our own separate calibration on the MRIP data, and so, again, going back to what Ryan was saying, in terms of time and resources and other parties' responsibilities for the MRIP data, for the interim analysis, it was just the query data.

The Coastal Household Telephone Survey was from the prior assessment, which, for SEDAR 27A, which was completed in 2012, that had -- That was before the fully-calibrated MRIP data came out, and so the -- In the S64 base model, that uses that fully-calibrated data, and the same thing for the interim analysis.

DR. MICKLE:  Got you.  Thank you.  I have a follow-up question.  Is that okay, Mr. Chair?

DR. BUCKEL:  Yes.

DR. MICKLE:  Thank you.  Real briefly, I was just wondering, and, in the future, is there going to be efforts to look at the private-launch landings, to potentially acquire those potential landings, from an FWC standpoint, for future stock assessments, because it's my understanding that the bulk of the landings, as you've shown, come from the Keys with this species in the assessment, and I think a lot of, or the majority, of the recreational fleet, or a large portion, are launching from private residences, and those landings are not being missed, and, also, my experience -- I think it was in the Turks and Caicos, but some of them were caught actually on docks, or land-based landings, or shore-based landings.  Doug, or somebody who lives down in the Keys and has experience in this fishery, is that a concern, of private-launch landings and shore landings, or am I just not familiar enough with the fishery?  Thank you.

DR. BUCKEL:  I see Ryan has got his hand -- Ryan, is it to that point?

MR. RINDONE:  It's to that point, but I will wait on Doug, since he lives down there, and I just fish down there a lot.

DR. BUCKEL:  Okay.  Go ahead, Doug, and then we'll go to Ryan.

MR. GREGORY:  I would agree that it could be substantial.  We have no inventories of how many boats would be at private canals versus launches, and so it could be a factor.  I don't think the -- I recognized a similar concern when you start thinking about places like Fort Myers and the Panhandle of Florida and the number of boats that are working out of private docks, rather than going to public boat launches, but, while I've got the floor, can I ask a question?

DR. BUCKEL:  Yes.  Go ahead.

MR. GREGORY:  Okay, and, to follow-up with what Roy was saying, looking at these constant-catch scenarios, it's a bit confusing.  What is the purpose of the blue bar?  It's a three-year period, but, anyway, other than that, it seems, to me, that carrying out these projections constantly is misleading.

The equilibrium projection would be -- It's the maximum fishing mortality threshold at equilibrium, and eventually it will get there, but, with the other, more constant-catch scenarios, my understanding is that's a fishing-down effect, to fish the population down to F of MSY, and so

couldn't we look at a transition, so it doesn't exceed the goals here, so that, when we get to MFMT, or F of MSY, we transition from the fishing-down effect to F of MSY and project that forward. Again, that would bring us probably down below what it is, because we're not there yet, but it seems, to me, that that would make more sense, to have a more interim fishing-down effect and then switch over to F of MSY and not run these things out past where they should go, because it looks like -- It just doesn't look right, to me. Thank you.

DR. BUCKEL: Doug, Shanae can chime-in, but I -- You know, these were -- We'll get into the TORs, but these were requested. These constant-catch projections were requested, but I think the earlier projections, where it was an annually-variable catch stream, is that we would be using to set the fishing-level recommendations, and that's consistent with what we did last time, but this was provided by Shanae because it was one of the TORs, but I just wanted to point that out to folks, and we'll get into that when we get into the action items, but just for clarification. Are there other questions, clarifying questions, for Shanae and Chris before we go to reviewing our action items? Doug, go ahead.

MR. GREGORY: Since Ryan didn't jump in, I will go again. You mentioned that you estimated steepness, but I didn't see, in the report, any of the steepness estimates, and I didn't see any calculation of what FMSY would be based on that steepness, and I also noticed that you're using the stock-recruit curve to make projections, and that's not much different than if you took the average seven years of the recruitment estimates, and one is about, I think, twenty-million fish, and the other one is eighteen-million fish, and so it doesn't make much difference there, but I was curious about steepness and what F of MSY was calculated at, relative to the F of 30 percent. Thank you.

MR. SWANSON: Thanks, Doug. The estimated steepness, for the interim base model, didn't change much from what was in the base model from S64, and so the steepness was estimated at 0.82 in the IBM. We don't have the calculated F at MSY value, because yellowtail has been managed on an SPR-based system for a while now, and so I just don't have that calculation for you right now.

MS. ALLEN: Just to add to that, quickly, FMSY quantities were not recommended to be used, because there was little information about steepness. When we did the likelihood profiling, it was fairly flat, on a broad range.

MR. GREGORY: Thank you.

DR. BUCKEL: Okay. I don't see any raised hands, and so we will -- I am going to turn things over to Judd, and Judd wanted to provide a little history information before we jump into the review of our action items, and so take it over, Judd.

DR. CURTIS: Thanks, Jeff. I just wanted to go through just a quick history of what the joint SSCs had decided at previous meetings and to just kind of introduce the format for our consensus statements and recommendations, how we operate through the South Atlantic, and so thanks, Chris and Shanae, for a great presentation.

Previously, the joint SSCs have met in October of 2020 to review the benchmark SEDAR 64, and they determined, at that point, it was consistent with the best scientific information available and

useful for management advice.  The SSCs also recommended using that calculated P* value of 0.375 to reduce ABCs, using the South Atlantic's ABC Control Rule, which is why you saw those projections in the presentation.

They also recommended that the council consider adjusting ACLs or ACTs for management uncertainty.  An example given from the SSCs' previous recommendations and report, in October of 2020, was a 75 percent F at 30 percent SPR, and, as well, Shanae and Chris provided a 90 percent F 30 percent SPR projection, which you will see in the table below, and so the SSCs, in this meeting, were asked to review the interim assessment and provide feedback on projections and then make catch level recommendations.

Below, you will see some of the action items involved with this presentation of reviewing this interim analysis, and so we need just guidance from the SSCs of does this interim analysis address the TORs to the SSCs' satisfaction, and are there any issues with the interim analysis that would prevent it from providing fishing level recommendations, and is this yellowtail snapper interim analysis consistent with the best scientific information available, and, following that, providing the fishing level recommendations for OFL and ABC and any comments on applying the control rule that has not been made available?

You can see, in Table 1, and I have taken the liberty to pre-populate the projections from the year 2023 out to 2027.  With the different columns, you have F of 30 percent SPR, and so that gives you OFL, and the P* for your ABC, equal to 0.375, and the two alternative projections that was presented, at 90 percent and 75 percent of F 30 percent SPR, and so, Jeff, that's a quick summary, and I will send it on back to you.

DR. BUCKEL:  Thanks very much, Judd, and so the first action item of reviewing the interim analysis, that first sub-bullet, does the interim analysis address the TORs to the SSCs' satisfaction, and, Judd, I'm not sure if you can put those TORs up, so folks can -- We can go through those. Thanks.  Okay, and so hopefully folks have taken a look at this, and this is Attachment 3c, and so I'm not going to read through these individually, but I want to ask if anyone has heartburn or they feel like some of these -- Like a TOR, or many TORs, were not addressed in the interim analysis, in the presentation today.  I noted that Chris and Shanae did an awesome job of, when they were addressing any of these TORs, they made reference back to this document, and so each of them was addressed in the presentation.  I see Jim Nance with his hand raised.  Go ahead, Jim.

DR. NANCE:  Thank you.  I was going to reiterate that and thank them.  They did an excellent job in doing the presentation and going over what the TORs were and how those were satisfied within the analysis, and so, personally, I am very satisfied with what they've done, and it seems like they have addressed each of the TORs sufficiently, from my perspective.

DR. BUCKEL:  I agree with that statement, Jim.  Let's put it this way.  Does anyone disagree with the statement that the TORs were addressed adequately?  All right.  Seeing no hands, Judd, if you could make a note there, under that sub-bullet.  Thank you.  The next sub-bullet, are there any issues with the interim analysis that would prevent it from providing fishing level recommendations?  Please raise your hand if you have comments to that sub-bullet.

All right.  Seeing no hands, we can -- Judd, thank you.  All right.  The third sub-bullet, is the yellowtail snapper interim analysis consistent with the best scientific information available, and I

just want to reiterate what Judd said in his background, or on the history of this, that we did find that SEDAR 64, the base model, was consistent with the best scientific information available, and, Jim Tolan, I see your hand is raised. Please go ahead.

DR. TOLAN: Thank you so much, and this is really more of a question for the analysts. Are you guys comfortable with the way that the Stock Synthesis does projections, and Doug really hit on the head. In a very quick amount of time, it pushes it to the overfished status, and this is something -- This first year of a huge amount of biomass, and then falling off in subsequent years, and I've seen it over and over and over, on all these different stock assessments, and I'm still convinced, within Stock Synthesis, the way it does projections is not really a true autoregressive integrated moving average method. I mean, I have yet to have it explained to me, but are they okay with the way that it does projections, because you're taking a species that is in pretty good shape and pushing it towards overfishing, in a really short amount of time. Thanks.

DR. BUCKEL: Shanae can chime-in here, but I think the fishing level recommendations that Judd has in the Table 1 here, that those projections do not have F going -- The Fs leading to overfishing, and is that correct, Shanae?

MS. ALLEN: That's correct, yes, and so they will reach equilibrium values quite quickly, but they don't go below the OFL there, F 30 percent SPR. They will eventually reach the equilibrium value, but they will not go below.

DR. BUCKEL: So, Judd, are you controlling the screen right now? If you could show maybe that projection with the -- Not the constant catch, but the variable catch stream. Let's scroll up to where it's constant F.

DR. CURTIS: Here we go. Here's the constant F scenario.

DR. BUCKEL: That's retained yield, SSB, and then -- Thanks. So I just wanted to point out that -- Correct me if -- Shanae has confirmed that this is the projection graph that is associated with the fishing levels that are in Judd's -- The table that he provides in the document, and so it's not the fishing mortalities that were from the constant catch projections. Okay. Marcel, I see you're next with a hand raised. Please go ahead.

DR. REICHERT: Thank you. Can you pull up the action items? The scientific information available, and this may be implicit, but that's considering the TORs, because, for instance, the indices were not updated, and they could have been, but that goes back to the definition of scientific information available, but I think it would be good to mention that -- I agree that this is consistent with the best scientific information available, but given the TORs, and does that make sense?

DR. BUCKEL: Yes. It makes sense to me, and I think that's a good point to make here. Thanks, Judd. Maybe add something that -- Great. All right. Amy, please go ahead.

DR. SCHUELLER: I think that the SSC should make a comment about the fact that interim analyses really haven't been fully vetted, meaning there's a lot of different types of interim analyses, and I think that the South Atlantic SSC, at least, has been waiting for some research regarding sort of how well these interim analyses perform, and so I don't say that to sort of bomb

this, but I say it because I think that we would be remiss not to make some sort of statement with respect to that.

DR. BUCKEL: Amy, do you have some specific verbiage that you could help Judd with there?

DR. SCHUELLER: I can work on some.

DR. BUCKEL: You can see what he's typing there, and so, if you want to change it --

DR. SCHUELLER: Okay.

DR. CURTIS: I will chime-in here and say, on the South Atlantic SSC, we're waiting for a presentation from the Science Center on interim analyses, and the Gulf of Mexico SSC has already received presentations and integrated some interim analyses into previous assessments.

DR. BUCKEL: Thanks for that, Judd, and your first -- What you typed in there of "BSIA, as specified by the TORs", I guess the language we need to use is "consistent with BSIA, as specified by the TORs". Thanks. We'll go to Doug Gregory.

MR. GREGORY: Thank you. Yes, and I was kind of surprised that this was called an interim assessment, because it's nothing like the interim assessments that the Southeast Fisheries Science Center has been providing to the Gulf SSC. This is more like an update assessment, in the old jargon, and I don't know who is online that can clarify what is what, but there is confusion, I think because of this terminology. Thank you.

DR. BUCKEL: It looks like Ryan is going to take that question, Doug.

MR. RINDONE: Thanks, Dr. Buckel. Hi, Doug. There is a bit of artistic license that's afforded under the terms of reference, with respect to how the analysis can be done, and so, for this, we had specified updating the directed fleet removals and discards, specifically, and not updating some of the other fisheries-independent indices of abundance, as we would do for something like a normal update assessment, where we wouldn't change any of the data, and we would just update everything with current years that was already used last time.

There were some other sensitivity runs that were done here, which is atypical of what the Gulf has normally seen with an interim analysis, and those were to address specific -- In one case, a specific term of reference, to look at 2017, and the other one had to do with something that the analysts had identified when they started poking around, and so, in terms of an exact definition, I don't know that we actually have an exact definition of what it means for something to be an interim analysis, and what we did for red snapper, the last time, we just called it a catch analysis, because it wasn't really an interim analysis, and so maybe that's something that the SSC, or SSCs, can decide upon at some future date, about defining what that actually means, but, at this point anyway, there's a little bit of artistic license, I think.

DR. BUCKEL: Thanks, Ryan. All right. Next up, I have Will Patterson.

DR. PATTERSON: Thanks, Jeff. I think the key here is the difference between assessment, interim assessment, versus interim analysis, and I didn't see, anywhere in the documentation,

where this was called an interim assessment, but it is quite a bit different than the interim analyses that we've gotten recently in the Gulf, which typically are scaled to some type of fishery-independent index of abundance.

I think, as the two, you know, main regions being served by the Southeast Fisheries Science Center, it would be important, just from the questions that Amy has raised and then Doug Gregory raised, about, you know, what will interim analyses look like moving forward, as the Center tries to get as much throughput, but also meet the requirements under the reauthorized Magnuson Act, and so I actually preferred this approach that FWC scientists have taken here, and, obviously, that was part of -- The terms of reference guided that process, but I think it would be worthwhile for the Center to look at an MSE-type of process to try to determine which of these would be the best science, scientific approach, you know an indexed-scaled type of interim analysis versus updating catch and discard estimates without touching any of the indices or having age comps, et cetera, and which of these, over the long-term, provides better management advice for these fisheries.

Yellowtail is an example here where you have a stock that hasn't historically been estimated to be overfished or undergoing overfishing, and so perhaps it's not quite as sensitive to some of these things as maybe, you know, Gulf or Atlantic red snapper, for example.

DR. BUCKEL:  Thanks, Will.  Excellent points.  Judd, if you -- Were you able to capture that? Maybe a research recommendation in there for a comparison between the Center approach to interim analysis versus this approach that was taken here that was driven by the TORs, guided by the TORs.  All right.  Dave Chagaris is next.

DR. CHAGARIS:  I think Will said everything that I was going to say.  I mean, I also prefer this approach, and, in the Gulf, we do the interim analysis based off of an index, as Will pointed out, and it creates this disconnect between the actual model that had been approved a year or two before, and I think this kind of shows the way forward, where you can, you know, just update the data streams that you need to, and then you don't even have to estimate all the parameters, and, again, just the ones that you need to move the model forward, but I do think that this is something that we should evaluate further and see how they perform.  Thank you.

DR. BUCKEL:  Thanks, Dave.  Roy.

DR. CRABTREE:  Well, I was starting to think about getting from here into fishing level recommendations, and I don't know if we want to hold off on that.

DR. BUCKEL:  Let's see what Harry and Yuying -- Do you have comments related to the review of the interim analysis, or is it moving on to fishing level?

DR. ZHANG:  This model is running by IBM, and, actually, I am writing a proposal including yellowtail snapper, and I can include it like in the MSE, to develop one for that, and we can do various kinds of projections.

DR. BUCKEL:  Great.  Thank you.  Harry.

MR. BLANCHET:  Mine was more addressing some questions about MRIP data streams, and so it's not pertinent here.

DR. BUCKEL:  If you want to -- We're going to move into fishing level recommendations next, Harry, and so, if you had a concern about the MRIP data for the interim analysis, that would -- This is, I think, the time to provide it, and then we'll go forward with doing the fishing levels. Thanks.

MR. BLANCHET:  Okay, and so feel free -- Anybody jump in when I go off -- Not if, but when, and, as I understood it, the last SEDAR 64, was it, used the Coastal Household Fishing Survey, and the telephone survey, as the base of the MRIP landings.  I did not get, completely, that the current assessment translated that to the Fishing Effort Survey, or FES-based currency, but I assume that that's what is going to be going forward, but then that's -- If you want to have equivalent harvest levels, that means you have to change the allocation fraction, or else you are changing, de facto changing, F by the various fleets, and so I wasn't sure how that was addressed in the current assessment, but that was to the second point in this TOR about issues with the analysis that would prevent us from providing fishing level recommendations, and that was the only thing that I saw.

DR. BUCKEL:  Thanks, Harry, and, Shanae or Chris, do you want to address that?

MR. SWANSON:  That's actually incorrect.  The S64 base model, which was developed in 2020, uses the FES MRIP data, and so that was continued forward in this interim analysis.  The Coastal Household Telephone Survey data was used in the SEDAR 27A assessment, which was back in 2012, and the quotas, ACLs, that were developed from that assessment model are based on those MRIP data.

MR. BLANCHET:  So this was taken care of in 64.

MR. SWANSON:  Yes, and so, in 64, that was --

MR. BLANCHET:  Okay.  That's all I needed.  I missed that part.

DR. BUCKEL:  All right.  Thanks, Chris.  The next hand raised is we're going back to Roy, and we're moving into the next action item, which is to provide fishing level recommendations, and so, Roy, please go ahead with your comment on that action item.

DR. CRABTREE:  All right.  My understanding, at least, is, the last time around on this, the ABC was set at the yield fishing at the P* value, and it does seem, to me, that the nature of these interim analyses is such that some things are updated, but a lot of things aren't, and so, over time, the uncertainty associated with all of these projections is increasing, and so it does seem, to me, now that the level of uncertainty is higher than it was last time around, and higher certainly than is reflected by the P*, and so some additional buffering for uncertainty would be appropriate.

The other thing is, in terms of setting ABCs based on constant fishing mortality rates, I don't know how many years we would set the yields based on the constant fishing mortality rate, but, at some point -- If we set say three years' worth of yields, when you get to the last year, it just stays where it is until things are updated again, and so, at some point, these constant F scenarios become a constant catch scenario, unless things are updated on a timely basis, which I think is something

that the council and folks need to bear in mind, but it does seem, to me, there is a basis for a larger amount of uncertainty this time around than probably was there last time.

DR. BUCKEL: Thanks, Roy. What do folks think? We went through the ABC Control Rule in December of 2020, and so, as Roy mentioned, we've had a few years out, and so any comments on the P* of 0.375 and revisiting that level of uncertainty? Go ahead, Will.

DR. PATTERSON: Thanks, Jeff. I'm unsure how the control rule in the South Atlantic is typically utilized, but, you know, Roy makes a good point here about the uncertainty, given that you're getting farther and farther away from the actual -- From most of the data in the assessment, and that this isn't really an updated assessment of this interim analysis. However, and this is where the uncertainty around how the South Atlantic Council SSC typically handles these types of situations, but here you have, you know, a stock that's estimated that the spawning stock biomass is considerably higher than the threshold value, the estimate is, and so how do you balance that against the uncertainty that Roy just mentioned about getting farther away from the benchmark?

DR. BUCKEL: Anybody want to address Will's question, or comment? Go ahead, Fred.

DR. SCHARF: I was just going to sort of chime-in at a high level again on the same topic, and, you know, I had the same feeling that Jim had, Jim Tolan, who mentioned earlier that we have a stock that's in pretty good shape, and, even using the constant F, or at least an F of 30 percent SPR, we're going to be pushing the stock right toward the thresholds, the overfishing thresholds and the SSB thresholds, and I wonder -- As Will just said, we have a stock where the SSB is considerably above the target, but I think there's a lot of uncertainty about whether the productivity of the stock is affected if that SSB gets -- Is lower, down toward that threshold.

In 2020, when we reviewed SEDAR 64, and they recommended, and the SSCs recommended, using the P* value of 0.375 to produce ABCs, they also recommended that the council consider adjusting the annual catch limits for management uncertainty, such as using the data that's in the right-hand column over here, where you're fishing at 75 percent of F 30 percent SPR, and so just something that we can consider, and Genny will have some more insights into how the SSC, for the South Atlantic, handles these situations. Thanks.

DR. BUCKEL: Thanks, Fred. Go ahead, Genny.

DR. NESSLAGE: Oh dear. I don't know if I will have insight, but I was just going to comment on our current ABC Control Rule. It's not a big adjustment to the P*, but we do -- I think we picked medium-level uncertainty characterization, which gives it a 5 percent adjustment, and that's where full uncertainty is not carried forward in the projections, if I remember correctly, and, Judd or Jeff or whoever, correct me if I'm wrong, and so just a comment.

DR. BUCKEL: I think that gets to Will's question about, for our South Atlantic control rule, if there is a place where there could be an adjustment made, and so I guess we'll go to Marcel and Doug, but maybe just think about two places, maybe, to -- There is one here, right, and we could change the P*, or discuss changing the P*, under this uncertainty characterization, and then the second option that Fred Scharf mentioned was asking the council to take care of this with management uncertainty. Go ahead, Marcel.

DR. REICHERT: Genny addressed what I was going to say, and I'm glad that you pulled up the ABC Control Rule, because, if you go to Tier 4, that has a definition, and, you know, I think the distributions are there, although I think, as an SSC, we can justify potentially addressing the tier we select for the uncertainty, but, yes, and I agree with Roy and others that the uncertainty has increased since SEDAR 64, and so thank you.

DR. BUCKEL: Thanks, Marcel. Doug.

MR. GREGORY: Thank you. I thought the purpose of this assessment was to catch up and reduce any perceived uncertainty, given the timeframe between the benchmark and today, but, also, if my memory is right, harvest doesn't reach the ABCs now, and so, if we raise the ABC, it's not likely that harvest levels will increase that much, and so there's an uncertainty on the plus side, or the conservative side, that harvest levels just probably won't increase like the projections indicate. Thank you.

DR. BUCKEL: Thanks, Doug. All right. Other SSC members? Any comments on this question of uncertainty, and, if folks heartburn about the increase since December of 2020, if we want to deal with that, either through P* or advice to the council, or some other options, or, as Doug mentioned, there's not as much concern, because the interim analysis provided updated data, but one thing that -- I don't see any hands raised, and one thing that I looked at was the -- Judd, I think that was one of the attachments, but the joint webinar report from October of 2020 that had our recommended fishing level recommendations. I don't know if you could bring that up side-by-side with the current fishing level recommendations.

DR. CURTIS: That's what you're seeing on the screen now, is the old meeting report.

DR. BUCKEL: If you could go to the table. If you could go to the projections scenario, the fishing level recommendation table, and I compared the fishing level recommendations for -- If you look at 2023 through 2025, they're amazingly similar, right, to the interim analysis projections for P* of 0.375, which made me, you know, feel more confident about moving forward with a P* of 0.375, because, if there hadn't been this interim analysis, you can see where the fishing level recommendations would be, and you can see what the interim analysis -- What they look like now, and they're just slightly lower. We'll go to Will next. I see his hand is raised.

DR. PATTERSON: Thanks, Jeff. Getting back to Roy's point about uncertainty, I think it's an important one, but, as I look at the South Atlantic's control rule table, just based on the text here under Dimension 2 Uncertainty Characterization, while uncertainty has increased, it's not clear, to me, or I don't think it has actually occurred, that the level of increase in uncertainty would bump this into another tier, and that's just my personal opinion on that.

DR. BUCKEL: Thanks, Will. Marcel.

DR. REICHERT: There may be another way to address this, also, because I largely agree with what others have said. In other assessments, the SSC has been asked to provide recommendations as to the next assessment type and interval and present recommendations to that assessment, as well as research recommendations, which we already have one, and so perhaps, in order to address some of this, maybe we can provide some recommendations, in terms of what we feel the next assessment should look like and when that should be done, and then, also, provide some

recommendations as to what potentially should be included in that assessment to reduce, or address, some of the uncertainty issues, for instance update the indices, consider the MRIP catch per angler, et cetera, and so, anyway, that's something that I missed in the action items here, but that we may be able to provide some recommendations as to these points.

DR. BUCKEL: Thanks, Marcel, and I think that's good, and we can -- Under these difficulties encountered -- That's a good place, Judd, for BSIA. Maybe just -- Marcel, if you can just give those to Judd one more time, and one was on the MRIP index, and I missed the other one, but just so we'll have a record.

DR. REICHERT: It's update the indices, because it's my understanding that that was largely a practical-in-time decision. Also, the research recommendations to be explored, and it may be good to say to address some of the identified uncertainties, and maybe saying that it would be good to do this in -- I'm not sure what both SSCs feel is appropriate, and maybe the next operational or interim, or I'm not sure what the language is currently, but assessment in three to five years, or something like that. We never know what actually happens, but I feel strongly about making sure that the next assessment is done in a timely manner, and we all know the scheduling issues and time involved, time and effort involved.

DR. BUCKEL: Thanks, Marcel, and so are folks comfortable with recommending three to five years, given what we saw in the projections and come concern? We haven't decided on the fishing level recommendation yet, but it looks like it's leaning towards -- There was some concern about, if we go with, for example, a P* of 0.375, or something similar to that, that there's concern about how the Fs will look in the future relative to the target. Fred Scharf.

DR. SCHARF: I had a broad question about just how we are able to apply the ABC Control Rule, because I agree with what Will said, in terms of the uncertainty language in our ABC Control Rule document, and I don't think that what we've been talking about would warrant a change from Level 3, which was 5 percent, to a 4, and so -- But I do, you know, have some concerns about, given the interim analysis only includes new catch data and discard data, and it doesn't include updated data streams across-the-board, and I think the MRIP analysis -- That the deeper dive into the MRIP showed that the 2017 data, particularly from southwest Florida, wasn't very impactful, which was good, but I think this issue of using catch per angler, versus catch per trip, is likely maybe going to be a bigger issue, going forward, for other stocks as well.

It seems like using catch per trip is going to, you know, dampen some of the variability, which you would expect that it would, but, in the case of yellowtail snapper, using catch per trip, instead of catch per angler, pushed the stock -- It didn't change stock status, but it certainly pushed the biomass, the F levels, closer to the targets and thresholds than we are using catch per angler, and so I think mentioning those potential uncertainties, moving forward, is important, but I just didn't -- Are we -- If we were going to make a shift away from the P* of 0.375, does it require us to change the metrics in that table? Do we have to move from an uncertainty of 3 to 4, in order to justify doing that, or can we leave it at P* of 0.375, but just make a strong recommendation that the council consider some of this uncertainty and maybe, you know, sets the ACL a little bit lower than that?

DR. BUCKEL: Good question, Fred, and, Ryan, is it to that, to Fred's question? Did you want to make a comment, or --

MR. RINDONE:  I just wanted to inform the committees that yellowtail is tentatively scheduled to be reassessed in 2026, per our SEDAR schedule.

DR. BUCKEL:  Excellent, and so that matches Marcel's request, and so it's four years out. Thanks, Ryan, for that, and so, Chip, do you have something to Fred's question, related to the ABC Control Rule?

DR. COLLIER:  Yes, and, I mean, the ABC Control Rule there is -- You know, that's generally what you guys use in order to establish your P*, but, if there are reasons to deviate from the P* approach that you've taken in the past, then you're more than welcome to do that.  You know, you just have to justify the reasons why you're changing from the control rule, and that can be incorporated into it for a future projection that is not currently available to you guys to evaluate right now.

DR. BUCKEL:  Thanks, Chip, and my recollection is we -- You know, there was concern about unaccounted-for uncertainty, because of the Stock Synthesis approach, relative to BAM, and so that's when we recommended that P* of 0.375, but then we let the council know that there's this -- The uncertainty is not fully characterized, and we recommended that they consider 75 percent of F 30 percent, taken into account as management uncertainty, and so that's an approach that we could take here, or we could continue with the P* of 0.375, given the reasons that were just discussed, that, really, moving to that next Tier 4 is not -- You know, that doesn't match with the uncertainty that we're talking about.  I don't see any hands raised.  How do folks feel?  I will put that up as a strawman, since it sounds like we wouldn't be changing our P*, but there is other concerns that have been raised.  Go ahead, Marcel.

DR. REICHERT:  Thanks, Jeff.  I like that approach, and I have a quick question for Ryan, and I maybe have missed that, and so it's on the schedule for 2026, and is the type of assessment -- What is the type of assessment?

MR. RINDONE:  We have it listed as a standard.  FWC still operates under the old SEDAR benchmark, standard, and update framework of conducting assessments, and so, under a standard assessment, new data streams can be considered.  Previous parameterizations within the model, and settings within the model, can reexplored and things like that, but things that would be tantamount to major model changes cannot, and so like going to a multiarea model or something like that would go beyond the scope of what a standard assessment would be budgeting the time and resources to be able to do.

Essentially, how this will work is, sometime in 2024, probably early in 2024, we'll draft up a scope of work, and we being Judd and I and working with you guys on the SSCs, and we'll get that approved, through each council's respective SEDAR approval process, and we'll send that scope of work along to FWC and get feedback from them, so that they have some idea of what's being requested, and then that will be followed up with terms of reference, which will be a more full-blown recipe, if you will, for how the assessment will be conducted, at least a year out from when the assessment is scheduled to start.  That way, FWC knows exactly what is being asked of them and has had an appropriate amount of time to be able to do all of the internal tasking and whatnot to meet the request.

DR. REICHERT:  Thanks.

DR. BUCKEL:  Thanks very much, Ryan, for that update on how things are moving forward with the yellowtail assessment.  Jim Nance, you're up next.

DR. NANCE:  Thank you, Mr. Chair.  It's interesting, within comparing those tables, how -- I'm a lot more comfortable with keeping the P* at 0.375, and there was hardly any change, 100,000 pounds and that type of thing, between the two, and so I would recommend keeping -- From my perspective, keeping the P* at the level we set it at last time, but, if there are -- If the council feels like there is higher uncertainty, because of the distance away from the original indices and things like that, then we could recommend setting an ACL at a lower level, those types of things, and so I would be comfortable with that approach.

DR. BUCKEL:  Thank you, Jim.  Jim Tolan.

DR. TOLAN:  Thank you, Mr. Chairman, and just an observation on moving forward with the ABC Control Rule and the P* approach, and this is certainly not something that's unique to this species, but, looking at both of these tables, those are some mighty small buffers between the different catch recommendations, and I know that, in the presentation, there was a couple of different times that it was noted that there were pretty small seasonal closures for the commercial side, and Ryan has relayed to us, a couple of different times, that's there's been a little bit of a change in the commercial prosecution of this fishery, but if, like Doug was saying, if the recreational side isn't coming anywhere near their allocation, then that small of a buffer might not be that big of a deal, but just, looking at these numbers, those are some pretty small buffers to play with, and so that was my comment.  Thank you.

DR. BUCKEL:  Thanks, Jim.  Good observation there.  Thanks for that.  Then I see Julie Neer, SEDAR staff.  Julie.

DR. NEER:  Hi.  I just wanted to chime-in that, unfortunately, Ryan is a bit incorrect in the timing. Mutton was significantly delayed, due to not just the yellowtail assessment update, interim, whatever you guys would like to call it that you're reviewing today, but there were a variety of other reasons, and mutton was scheduled for 2022, and it is now not beginning until 2023, the middle of -- The data workshop will be in August of 2023.

That has pushed everything back, and so yellowtail is currently not on the SEDAR schedule.  We have mutton in 2023 through 2024, hogfish in 2024 to 2025, black grouper in 2025 to 2026, and that is what's currently on the schedule, as discussed at the May 2022 SEDAR Steering Committee. The process, if it is still a standard, was all correct, but the timing -- It's probably a year slid back, because mutton was supposed to start this year, and it's not starting until next year, and so I just wanted to clarify that, if that changes your minds with regard to needing to keep your recommendation of do it as soon as you can, but that is what has come out of the May 2022 Steering Committee schedule.

DR. BUCKEL:  Thanks for the clarification, Julie, and I think that 2027 -- That's five years out, and Marcel was, you know, saying the next three to five years, and so that would still fall within his --

DR. NEER:  Recommendation, yes.

DR. BUCKEL:  Yes, as long as others -- If others have heartburn about that, please raise your hand, but we'll go to Shanae Allen, who might be commenting on this.

MS. ALLEN:  This is actually to a previous point, and there's been a few times it's been brought up of how similar to two P* yield streams are from this current interim assessment versus the October 2020 projections, and I just wanted to clarify that the projections in October of 2020 included pretty much the same information of landings and discards, but only in the projection portion as gap-year information, and so it was not in the base model, but, landings and discards for 2018 and 2019, they were imputed, or preliminary data for 2020, which was all very similar to what we used in this interim assessment, and so hopefully that was helpful.

DR. BUCKEL:   That is helpful, because I think it goes back to some of the research recommendations that were brought up before, that Will Patterson brought up, and maybe others have commented on as well, and so this may -- You know, the projection scenario that uses the -- As you mentioned, what was done in SEDAR 64, you're basically getting the same -- If you do an interim analysis that is only updating landings, there may not be a need, because you can do that just with the projections, but that would need to be looked into further, but that's an important point, and so thanks, Shanae.

We've got a strawman on the table, I guess, and it's -- That last bullet is there, in terms of what the joint SSCs would be providing as fishing level recommendations.  Do others have comments on that?  There is no hands raised at the moment.  Judd, maybe we'll just provide some of the additional uncertainty, and so the time since we set the P*, there in that last bullet, and there are a couple of different things that have been brought up, like the time that has elapsed since we set the P*, the -- One difference that we had in the previous review that still holds is how -- Shanae and Chris, correct me if I'm wrong, but how the uncertainty in the projections are characterized and your analyses versus the BAM, and that may not be the case anymore, but you can correct me if I'm wrong.

MS. ALLEN:  Right, and so the projections from Stock Synthesis does not use the ensemble model approach that BAM does, and so uncertainty from natural mortality, discard mortality, and other aspects like that -- Those are not accounted for.

DR. BUCKEL:  Thank you.  Okay.  Jim Tolan, I see your hand raised.

DR. TOLAN:  Thank you, Mr. Chairman.  Since we're not operating under the sort of strict motions that we normally do, if this is the idea put forth for the idea of a consensus, I can certainly go along with it and support it, and I just wanted to throw that in there.  Thank you.

DR. BUCKEL:  Thanks very much.  Okay.  I don't see any hands raised, and so I will take that that no one has heartburn with this last bullet as the fishing level recommendation, in terms of consensus, or our joint SSCs' consensus statement, and Judd has filled out the table, and so thank you, Judd.  Any other -- Maybe scroll up, so we can see the text, if there's any other -- For these sub-bullets, Judd has put in some text that addresses when we'll have to send the final report out, and so, if there's some additional information that folks want to provide here, or if we don't have

something fully fleshed-out, and we can do some of that later, but we want to make sure the main points are here, so we all remember, when we do work on the final report. Marcel, go ahead.

DR. REICHERT: Under the other research recommendations, I think I brought up the MRIP catch per trip, and I was looking at the review report for SEDAR 64, and there's a couple of research recommendations there, and I just had a question of whether anyone knows whether any of those research recommendations have been addressed, or are being addressed, such as the age validation and some of the other -- Improving sampling of discards, fishery-independent sampling, and stuff like that.

If both SSCs feel that it may be good to reemphasize some of these recommendations, because sometimes it just seems they are put on paper and then just kind of disappear, and so, if there's any of those that we feel may help with the next assessment, I think it would be for us to mention that, or perhaps just reference the SEDAR 64 review report and the research recommendations that are in that report. Thank you.

DR. BUCKEL: Thanks, Marcel. It's good to reemphasize those, for sure. Tom Frazer.

DR. FRAZER: Thanks. I was just wondering, you know, with regard to the recommendations here, which catch level scenarios are being considered, I mean, or are finding their way -- Is it the three-year, the five-year, or the equilibrium scenario? It's not clear to me.

DR. BUCKEL: So Shanae can correct me if I'm wrong, but I think those three and five-year were for constant-catch scenarios, and that's not what was used for these projections here, and it's the constant F.

MS. ALLEN: That's correct.

DR. BUCKEL: Thanks, Shanae.

DR. FRAZER: All right. Thanks, guys.

DR. BUCKEL: Thank you. Okay. Last chance for edits to our responses to the action items. Go ahead, Ryan.

MR. RINDONE: Thanks, Jeff. Just for clarity here, and I guess kind of bouncing off of what Tom said, and so the P* value of 0.375 is corresponding to the ABC for annual yields, but you guys are recommending that we should probably also have, in that table, or in another table, just in the same area, of what the OFLs are, so that, when the council staff have to draft amendments for all of this, this is all centralized, and, when the public is looking out to figure out what these certain catch levels are, they can find everything pretty easily.

DR. BUCKEL: Thanks, Ryan. Let's see. Ryan, you would like the table from the interim analysis report, where these -- If we provide the table in this table caption, and is that what you're getting at?

MR. RINDONE: Just to have the OFLs and the ABCs using the P* of 0.375 all in one place for those annual yields through 2027, and that will be most easily interpreted by the public. Since

we're not using 90 percent, or 75 percent, I don't think those need to be included here, because they're not part of you guys' official recommendation, and so the 30 percent SPR corresponds to the OFLs, and the 0.375 for the P* corresponds to the ABC, just to make sure that that's clearly noted, and I'm going to do a summary that I'm going to send to Judd, and he's going to dress it up how he likes and send it back to you guys, but just so that it's clear in there, so that, when folks are looking at the information, they know what they're looking at. It would be my recommendation to the committees to delete the 90 percent and 75 percent of F at SPR 30 percent parts of the table, since those are not being used, as to prevent confusion.

DR. BUCKEL: Well, we do refer to them, Ryan, in the -- For the council to think about those for ACL or ACT, to account for additional uncertainty.

MR. RINDONE: Okay.

**OTHER JOINT COMMITTEE BUSINESS**

DR. BUCKEL: But thanks for the -- I do agree totally with you on the providing the information that Judd is typing in now, to make it clear to the public, and so thanks for that. All right. I don't see any other hands raised, and so, if there are no other comments, we'll move to the next agenda item, and so that's other joint committee business, and what I have for you there, and, Judd, you can chime-in if you have anything else you want to add about this, but there's a joint South Atlantic and Gulf of Mexico SSC workgroup for unassessed stocks, and those are the ones that ABC equals zero.

In case you've forgotten, I'm going to remind the South Atlantic and Gulf of Mexico SSC members who is on that joint committee, and so, for the South Atlantic, Kai Lorenzen, who is the chair, Wally Bubley, Amy Schueller, Genny Nesslage, and Anne Lange. Then, on the Gulf of Mexico side, we've got Trevor Moncrief, Jason Adriance, Luiz Barbieri, Roy Crabtree, and David Griffith.

You will be hearing from either council staff or Kai soon, and they'll be scheduling a short webinar meeting this fall to discuss that committee's TORs and future schedule, and so any questions on that joint workgroup for unassessed stocks? Is there someone that thinks that they were on it that I didn't mention? Go ahead, Genny.

DR. NESSLAGE: Perhaps I just completely forgot that we were briefed on this, and that's probably the case, but when did this become a joint workgroup, and what does that mean for the recommendations that come out of this? Could they possibly -- How will that work? Do we know? What was the impetus for making it a joint working group?

DR. BUCKEL: I will let council staff -- Go ahead, Chip.

DR. COLLIER: I will go ahead and speak to that. You know, it's a similar issue between the councils, and Ryan also has his hand raised, and so he can probably fill-in after I'm done, but it's a similar issue between councils of, you know, how do you begin to consider an ABC different from zero when you're managing for some of these federal fisheries? A lot of the information that we rely upon is based upon the catch estimates, and just figuring out our way out of these would be extremely beneficial, and I will let Ryan fill-in from there.

MR. RINDONE:  Thanks, and Chip hit it on the head.  I mean, we have a lot of shared stocks that we currently work with, and some of them do have ABCs of zero, like goliath grouper, and that's the main subject matter, starting out anyway, for this particular workgroup, and so the State of Florida had brought this up during the June 2022 Gulf Council meeting, and the Gulf Council agreed that it wanted to include some of its SSC representatives and make this workgroup joint, especially to address goliath grouper, since we share that stock, and so it just seemed like the best approach moving forward, since we don't currently have any stock boundary delineations for that species.

DR. BUCKEL:  Amy Schueller.

DR. SCHUELLER:  So I'm in the same thought process as Genny, and I think it's because Genny and I were on the subcommittee that worked on the report that resulted in this workgroup, and I think Genny was the chair of that, and it wasn't just for stocks that had an ABC of zero.  It was for all stocks who have not made it on the SEDAR schedule, and we put together this matrix of options of assessment types, data-limited assessment types, that could be considered based on the data available for an individual species, and my understanding of the charge for this workgroup was to take some of those individual species and start working through them, to see how we could move forward with getting something better than an average catch, or something like that, for an ABC to be set.

I'm a bit concerned that the original intent of this workgroup has been skewed, or misconstrued, into something that it wasn't necessarily meant to be, and not the topic of how do you handle ABCs of zero isn't important, but it's just not the original intention of the workgroup that put out that report for the South Atlantic SSC.

DR. LORENZEN:  I am just following-on, and that was also my understanding, when I took on chairing this workgroup, and I'm not saying that I won't, but I'm surprised that this has changed into a joint group, and, as far as I know, I haven't heard about it before.  Thank you.

DR. BUCKEL:  Thanks, Kai.  Genny.

DR. NESSLAGE:  Thanks to staff for answering my original question, and I agree these are super important questions, and I guess we will have a chance to look at those TORs and be briefed on that, but I would -- I don't know what the TORs say, but I would encourage the councils to include some consideration about the fact that we have different control rules, and the South Atlantic one is likely to change soon, and how we --

I'm not sure how the Gulf handles unassessed stocks, and so I hope there is room there for council-specific recommendations on how to handle things, and, obviously, the science should be similar that we would recommend applying, but the actual -- How that would actually work in setting an ABC could be very different among the two councils, and that's where we might benefit from discussing among the two SSCs, and I would look forward to collaborating with folks from the Gulf, and I think that would be great, but, at the end of the day, we might have very different recommendations, based on how the councils handle these stocks, and so I hope the TORs are broad enough to handle that.  I think folks should be given an opportunity, who volunteered, to look at the TORs, to see if they still want to be on the group, and that's just a thought.

DR. BUCKEL:  Thanks, Genny, and I'm not -- Council staff can comment, but it may be that you guys will be coming up with some TORs, right, on your own, and so, Ryan, I think you were next, and then we'll go to Amy.

MR. RINDONE:  Sure, and so, in the Gulf, we had gone through the exercise of SEDAR 49, which had examined eight data-limited stocks to evaluate the ability to assess, in any way, using those in the toolkit, and we were able to get a couple out of that one, including lane snapper, and so we recently had a catch analysis presented to the Gulf SSC on wenchman, and the SSC is making some -- The Gulf SSC is making some recommendations to the Gulf Council now concerning wenchman.

As far as the original intent that the South Atlantic SSC had with respect to this committee, we didn't have the full scope of that information presented to the Gulf Council in June, and I don't think that any of that was intentional, by any means.  Goliath grouper, in south Florida especially right now, is kind of a hot-button topic, with the new limited harvest program that FWC is implementing this year, and so I think that's where some of the impetus for that came from, and that's why that was proposed by the State of Florida, as involving some of the Gulf Council's SSC members in this process, since we don't have an assessment, an approved assessment, for goliath grouper on the books right now.

Goliath grouper has dealt with some other data issues in the past, and it may benefit from a different assessment approach, and so that's a little bit of background on how we got to that particular decision.

As far as terms of reference and everything, it sounds like you guys have already done a considerable amount of headbanging to try to come up with some good ideas on this, and so I'm happy to collaborate with Judd to fill-in any blanks on the Gulf side, and, typically, when we're talking about differences in control rules, we've used an extremely complex method of whichever council has more of the biomass wins, and so that's why, for yellowtail, more of the biomass occurs within the South Atlantic Council's jurisdiction, and, therefore, the South Atlantic Council's ABC Control Rule is the one that is used.  We haven't deviated from that any time in recent history, insofar as I'm aware, and so I think there might have been one other question that was nestled in there that I may have missed.

DR. BUCKEL:  Amy Schueller.

DR. SCHUELLER:  I sort of had a hand-raise, but I will still comment.  I guess I will say that I agree with all the things that Genny said regarding its good to collaborate where we can, but we need to be careful with respect to the control rules.  I guess my statement is, if this group is moving forward in meeting and discussing terms of reference, then the group should be provided with all the documents that have been prepared already.  The South Atlantic SSC has already had a workgroup on this and put together a nice report, with some options and tool options, and so it seems like that should be reviewed before defining terms of reference for whatever this scope of work is going to be.

DR. BUCKEL:  Thanks, Amy.  Council staff, does anybody want to comment, or are you guys taking notes for the way forward?  Go ahead, Chip.

DR. COLLIER: I was going back to the notes from the April meeting and looking at the recommendation from the SSC, and it's the SSC recommends an unassessed working group be tasked with brainstorming new and perhaps non-traditional approaches to assessing goliath grouper and other species with recent ABC equal to zero, and so that was some of the language that we were going off of when we were talking about setting up this workgroup.

DR. BUCKEL: Thanks for the clarification, Chip. I still see Amy's name, but that may be a leftover. Go ahead.

DR. SCHUELLER: It was a leftover, Jeff, but I would suggest to Chip that he dig further back in the SSC reports for when we reviewed this workgroup's information, because that workgroup was put together, and I don't know what the date is, and I would have to look back in our reports, but it was longer ago than just this past April. It's that the workgroup was put together, and this additional topic came up, and we tasked ourselves with it too, and I don't know, and there's just more to it than just that statement in April 2022 meeting minutes.

DR. BUCKEL: Thanks, Amy. I think Ryan was next, and then we'll go to Genny. Go ahead, Ryan.

MR. RINDONE: Apologies if my hand was still raised, and I did remember the answer to the other question that one of the South Atlantic SSC members had made about the control rules, and that you guys are currently going through steps to update the South Atlantic's ABC Control Rule, and the Gulf is doing some of the same, and has requested Ralston-style approaches, using Gulf stocks, to be evaluated for consideration for ways to revamp the Gulf Council's ABC Control Rule, and so we too are tearing ours down.

DR. BUCKEL: Thanks, Ryan. Go ahead, Genny.

DR. NESSLAGE: I just wanted to echo everything Amy said regarding the broader tasking of this group as it was intended for the South Atlantic, but also just that we might want to also be prepared to tee-up some of the notes for goliath grouper from our spring meeting, because we had some very specific recommendations for how to handle that, that stock, that might not apply to most of the other stocks that are unassessed, at least in the South Atlantic. Thanks.

## JOINT CONSENSUS STATEMENT AND RECOMMENDATIONS REVIEW

DR. BUCKEL: Thank you, Genny. Any other comments on the joint workgroup? All right. Seeing none, the last agenda item is the Joint Consensus Statement and Recommendations, and so the committee is provided an opportunity to review its report, final consensus statement, and final recommendations, and so take a -- If you don't mind, Judd, scrolling up there, so folks can read through, one more time, and then it sounds like Judd and Ryan will provide some additions to the table, to make things a little clearer for the public, and then this will get sent out to everyone for their edits. Yuying, please go ahead.

DR. ZHANG: I haven't developed a tool for the yellowtail snapper yet, but, based on my knowledge on the red snapper, I feel like sometimes one MSE may not have that obvious effect. I

will give you guys an example, and I tried to increase the recreational landings to a very high value, and, to my surprise, the results didn't do too much, and the reason is because I set the penalty into the management procedure, and so I cannot say for the yellowtail snapper, but I am thinking, in the future, when the SSC, or other stock assessment scientists, want to set one constraint, maybe they should also define some others, because MSE is so complicated, and sometimes they combine to make effects, and so just some thoughts.

DR. BUCKEL:  Thanks for that comment.  Judd, I don't know if you want to put that under the research recommendation.

DR. ZHANG:  I suggest, for important species, maybe a customized MSE may be necessary.

DR. BUCKEL:  Thank you.  Other comments on our text?  Okay.  I don't see any hands, and, Judd or Chip or Ryan, do you have any other items before we adjourn?

MR. RINDONE:  None from the Gulf.

DR. CURTIS:  There is no other joint items that we need to address until our lunchbreak.

DR. BUCKEL:  All right.  Well, I want to thank Shanae and Chris, again, for that excellent presentation and thank all the SSC members from the Gulf and South Atlantic Council SSCs for all their work today, and before today, in reviewing the documents, and also thank the council staff and SEDAR staff for all their help with this.  The meeting is adjourned for the Gulf.

DR. NANCE:  Jeff, thank you for hosting us.

DR. BUCKEL:  You're welcome.  I enjoyed it, and so the Gulf of Mexico group can drop off, and the joint meeting is adjourned.  The South Atlantic folks, have a good lunch.  We have an hour scheduled, and so it's 12:07 now, and we'll come back at -- We will do five after one, and we'll get started, because we've got a lot of agenda items for Spanish mackerel, and so thanks, again, everyone for a productive morning, and, South Atlantic folks, we'll come back on at 1:05 p.m. Thank you.

(Whereupon, a recess was taken.)

## **INTRODUCTIONS**

DR. BUCKEL:  It looks like everybody is back, except for Jennifer, and she told me that she had a faculty meeting, and I think it was early afternoon, and so she let me know that she would be missing the first couple of hours of this, and we haven't heard from Alexei?

DR. COLLIER:  I have not.

DR. CURTIS:  Jeff, I have not heard anything from Alexei.  Just, as we move forward, he was scheduled to be one of the rapporteurs for the breakout groups, the first breakout group, and so we need to assign a new one.

DR. BUCKEL: Chris Dumas, would you mind taking over those duties? You're in that, and that's the review assessment breakout group.

DR. DUMAS: Sure. I would be glad to.

DR. BUCKEL: Thanks, Chris. Okay. Chip, did you have anything that you wanted to say before we get started again?

DR. CURTIS: Nothing on my end.

DR. COLLIER: I was just thinking about, procedurally, the way that we could go forward with this, and I know there's some people online that would like to give some public comment, and what we were thinking is to have Erik give his presentation on the stock assessment and then have the SSC do clarification, ask for some clarifying questions, and then have public comment after that. That way, everybody knows exactly what the stock assessment is saying, and they can make their comments in regard to that, and does that sound good with the Chair and the SSC?

DR. BUCKEL: That sounds great to me, Chip. Thank you. Does anyone on the SSC have heartburn with that? If you do, raise your hand.

DR. CURTIS: Judd, don't forget to scroll up on the hands-raised document.

DR. BUCKEL: Okay. I don't see any hands raised, and so we'll go ahead and jump right in, and so, again, my name is Jeff Buckel, and I'm the Chair of the South Atlantic Fishery Management Council Scientific and Statistical Committee, and I'll be chairing this afternoon's session, where we're going to be reviewing and setting fishing level recommendations for South Atlantic Spanish mackerel and reviewing that operational assessment.

The agenda is on the website, and hopefully you've downloaded that, and Judd has got it up here as well, the overview, and so does anyone have any comments on the agenda or the overview? All right, and so that's approved. I do want recognize Marcel Reichert as our newest member. We're not going to go through the introductions again, and we don't need to do the voice recognition again, but, Marcel, welcome back. We're excited to have you back on the SSC, given all of your experience at South Carolina DNR as well as your past service on the SSC, and it's nice to have that institutional memory, and so welcome back. We're glad to have you.

DR. REICHERT: Thank you, Jeff. I appreciate it. It's good to be back, and I'm looking forward to working with everyone on the SSC again. Thank you.

DR. BUCKEL: Thanks, Marcel, and, if you haven't noticed, Wilson Laney is no longer on the SSC, and so, in the past, the SSC has sent a letter to members that have left the SSC, to thank them for their service, and we want to do that for Wilson, to thank him for his many years of service, and, Genny, I know you've done that in the past, and Chip mentioned that he had kind of a template letter, and maybe if one, or both of you, can send me what you have, and then I can tailor -- I will take the lead on tailoring that letter to Wilson, and then I'll send that out to the SSC for any comments before I send that to Wilson. Thank you, Genny and Chip, for any help you can provide there.

All right, and let's see. Any other -- Carolyn is with us again, I hope, and so that's our council liaison, Carolyn Belcher, and so thanks for rejoining this afternoon, and I am just checking to see if Shep is on. Do we have a NOAA counsel rep?

DR. COLLIER: I am not seeing a NOAA counsel rep. Shep is on detail right now, and so --

DR. BUCKEL: Okay. I was just going to recognize them, if they were here, and so all right, and we've already dealt with the agenda items, and I did that out of order, but I didn't hear any comments on the agenda, and so we'll consider the agenda approved. Then the other thing that we need to approve are the minutes from our April 2022 meeting, earlier this year, the April meeting, and are there any edits to the minutes from the April meeting? Raise your hand if you have any comments on those. All right. Seeing none, we'll consider the minutes from our April meeting approved.

All right, and so I think the next agenda item -- Unless Chip or Judd have anything, the next agenda item is a presentation from Dr. Erik Williams from the Southeast Fisheries Science Center, who is going to present the operational assessment for South Atlantic Spanish mackerel, and I will point you to the Attachments 7a through 7e that are on the South Atlantic Council's webpage, and so, Erik, I guess Judd will give you the share screen, and you can take it away.

## SEDAR 78: SPANISH MACKEREL OPERATIONAL ASSESSMENT

DR. WILLIAMS: Okay. We're off and running. Thank you, Jeff, for the intro, and thanks, everybody. I will try to run through this quickly, because I know these things always end up having longer discussions than we anticipate, sometimes, and so let's see. Before we get started, I wanted to make sure that I acknowledge that I did not do this assessment. Rob did all the work, with some support from Matt Vincent, and so Rob I think is on, but the reason he's not doing the presentation is he changed jobs, and is quite busy with his new job, and so, therefore, I just decided to go ahead and do the presentation for Rob, but hopefully he's on, and Matt I think is on too, and so, if I get tripped up by any questions, they might dive in and help me answer them.

A quick background, and the last time this assessment was done was in SEDAR 28, with data through 2012, and so this is an old assessment. We're calling it an operational, even though I will go over some changes that we made, that kind of needed to be made, just because of the age of that assessment. At the time of SEDAR 28, the stock was not overfished and not overfishing, and you can see the relative benchmark measures here, and this new operational assessment includes a terminal year of 2020, and some of the data provision delays sort of altered the original schedule, which is partly why the terminal year was left at 2020, and we maybe could have juggled that and pulled it in 2021, but I think it just worked out the way it did.

During the process, we had one data scoping call and four assessment webinars, and we had panel input and approval of all the decisions. Next, I was going to ask -- I'm going to go through the whole presentation with these topics, and I could pause at the end of each of these topics for questions, or I could just run through the whole thing and have all questions at the end, and I will defer to Jeff, or somebody, as to how they want to handle that.

DR. BUCKEL: I think we'll just hold everything until the end, Erik, and so, folks, just write down your questions as we're going through this, and, that way, we won't break up the flow of Erik's presentation and so please keep track of -- Write down questions as we're going along, and then, once the presentation is over, then we'll go through those. Thanks.

DR. WILLIAMS: That would be great, and the other thing I would add to that is jot down the page number too, and it might make it easier to go back to a slide if somebody is referring to a specific slide and I can zip back to it pretty quickly. Okay.

Life history information, and so we did make some updates to the life history information. We updated the growth curve, and we had a population growth curve that used all of the data, and then we had a fishery-specific growth curve that we used for the fisheries, which took into account the twelve-inch minimum size limit, and then we also had a female-specific growth curve that we ended up using for sort of SSB calculations.

I will remind you that the last assessment was a two-sex model, or, actually, the next slide I think talks a little bit about that, and so hold off on that for a sec, but we also updated the Lorenzen curve for natural mortality, using these updated population growth parameters that came from this all-data growth curve, and so, as I mentioned, in SEDAR 28, we actually did a two-sex model, which it turned out was really an unnecessary complication that didn't really help improve any estimates, and, actually, the reviewers of that model recommended, the next time Spanish mackerel was done, to not do it as a two-sex model, and so we took that into account and reduced this to a single-sex model, and here is just a comparison.

Rob took the SEDAR 28 model as it was and just reduced it to a single-sex model, and this shows the difference between the two-sex version and the single-sex version, and you can see it really didn't -- It messed with the scale a little bit, which you kind of expect, because you're now lumping everything into one sex, instead of splitting it into two, in terms of weights and things like that, but everything else is right on top of each other.

The growth models, we had a Term of Reference Number 2 that specifically said update the growth and reproductive models if additional samples are available, and so we developed growth models, as I stated earlier, and we implemented the sort of size selection correction factor, the Diaz correction factor, when fitting those growth models, and we did it sort of with and without inverse sample size weighting, and the initial models estimated T0 ranging at a pretty low value, or extreme negative value, and we ended up deciding to fix T0 at negative-0.5, and this was done in SEDAR 28. The one that we didn't need to do that for was the fishery growth model.

Here is those parameter estimates, and this is -- The same data can be found in the assessment report, on PDF page 115, in Figure 1, and you will see, throughout my presentation, I sort of note, where appropriate, the page numbers from the assessment report, where this information can be found.

The reason we estimated -- Just to make sure everybody is clear on why we estimated three different growth curves, and so we use a population growth curve, which uses all the age data, to help sort of fix, or adjust, the Lorenzen age-dependent natural mortality function, and this also gets used for size and weight estimation of discards.

The fishery-dependent growth model only uses the samples that were from the fishery that are under the minimum size limit, and the reason to do that is because the minimum size limit in the fishing itself has selective properties that will change the way you would estimate a growth model, and, really, this doesn't -- That model is not meant to represent growth, per se, and it's really meant to be a model that's used to represent average size-at-age of the fish that are being caught in the fishery. Then we had a female growth curve, and, of course, that went into the calculation of spawning stock biomass, which is female-based.

Landings and discards, we had six times series of removals, and these included commercial handline, gillnet, and pound net, and we also had a time series for shrimp bycatch, and then we had the general recreational landings and discards, and these were all lumped together into a gen rec category. I guess this is some more details about -- So there are some issues with, and I'm sure this will come up, the impact of COVID on 2020 estimates, and you guys will recall, for those that were on the earlier part of this call, the joint SSC meeting, for 2020 MRIP, decided to impute some values for samples that were missing, essentially, due to COVID, and so that -- We used the same sort of imputation that MRIP provided for our 2020 estimates.

This is a plot of the commercial landings, handline, pound net, gillnet, and cast net, and so you will see these abbreviations, and they will probably be used throughout the presentation, and this is just sort of showing the pattern of removals that we've seen over the years. 1986 was the start year for the model, and so that's delineated here. All data to the right side of that line is what went into the assessment model. Here's the recreational discards and shrimp bycatch discards, the time series shown here, along with the general rec landings, and there's been a sharp increase in the rec landings and discards in the last three or four years.

Indices of abundance, we had three of those in the model. We had a young-of-the-year SEAMAP trawl survey index that was put in the model, and it runs from 1989 to 2019, and it used a zero-inflated negative binomial model. It's age-zero only, and so the selectivity is just assumed to be age-zero. We have an MRIP index that started in 1982 and goes through 2020, and the coverage goes all the way from Maine down to Florida, and it's based on directed trips, and it includes harvested fish. Then we have a Florida commercial trip ticket index that runs from 1986 to 2020, and we used positive trips in that, with, again, a distribution model.

You will note that the CVs were fixed at 0.2, but those get reweighted in the model, ultimately, in the end, or at least we explored it, and I can't remember if we actually ended up making final adjustments. Here is a picture of those indices of abundance, and they are what they are. Note that -- You know, keep in mind that the young-of-the-year index is just age-zero, and so we would expect that to be more noisy and not necessarily follow the trend of any of the other indices.

Length and age composition data, length compositions that were determined to be noisy and uninformative in the previous assessment were not used, I think is the message there. We modified the minimum sample size requirements, or age comps, to match current best practices, and I can't remember what was used in SEDAR 28, but sort of the current practice now is to use a cutoff, or a minimum requirement, of thirty fish, or ten trips, or both, for inclusion in the assessment model. Anything below that is deemed to be too noisy, and, as noted here, annual commercial handline and cast net fleet age comps did not meet minimum sample sizes for most years, and so a little bit of an issue there. Selectivity differences kind of prevented us from pooling ages across gear types,

or sectors, and, ultimately, the sample sizes were included as the model fit, as a weighting mechanism.

Natural mortality, we used age-specific natural mortality. Shown in the figure is what we used in SEDAR 28, and then the blue line, in this figure, is the updated SEDAR 78, using that updated population growth model, and so natural mortality changed a little bit, mostly at the younger ages, and it was reduced, but then slightly higher at the older ages.

Next, I'll go through the model update, and so, in SEDAR 28, we took the time series back, which was, and kind of still is, common practice, to try and take it back as far as you can, and we took it back to 1950 and made some assumptions about initial F and age structure, but, in SEDAR 78, and was the case back in SEDAR 28, the composition data doesn't really start until 1990, and the index starts in 1982, and so we started to look at altering the start year, and that was looked at in SEDAR 28 as well, and, in SEDAR 28, we compared the 1950 start year versus the 1976 start year, and the results of that are shown here, and you can see not much difference, and so the conclusion there is taking it so far back in time doesn't really add any information that you don't get from at least starting in 1976, but we evaluated that even further in SEDAR 78.

We looked at a starting year in 1982, which was based on the MRIP index, and then a start year in 1986, which was the start year of the Florida trip ticket index, and the results were that the model had difficulty estimating initial F and initial numbers at-age in 1976 and 1982, and part of that is because those age comps don't really start until 1990, and so you don't have enough age information going back in time far enough, and so what we settled on was starting the model in 1986, because it seemed to provide a stable initial F estimate and a stable initial age structure, and what we did was then truncate the MRIP index, which went back to 1982, but we just started in 1986, and so the whole model ended up -- We bumped the start year all the way up to 1986, from 1976 in SEDAR 28.

The selectivity that was used in SEDAR 28 is shown here, and so we had a combination of dome-shaped, or double-logistic functions, and logistic functions for various things, and that was revisited again in SEDAR 78, and so this is just for SEDAR 28. We evaluated the functional form and the parameters that were used for the cast net selectivity, and we evaluated slope for logistic selectivities in the commercial handline and gillnet. We evaluated the functional form for the dome selectivities, and so whether we should be using a double-logistic model or if we can use a simpler model for that, and we evaluated selectivity parameters for the commercial pound net and for the gen rec.

The general approach we took was to investigate the fit across components, with likelihood profiling, and sort of determine, through a sort of iterative process, figuring out which model construct was a balance between fit and number of parameters and stability, and that's probably the best way to put it, and what we came up with is shown in this table, where we basically ended up with a logistic function for the commercial handline, with some pooled ages across years, a commercial gillnet selectivity that was double logistic. For pound net, we ended up simplifying a little, with an estimation of the selectivity at age-zero, and then fixed age-one at one, and then did an exponential decay model for age-two-plus.

The commercial cast net was fixed at a logistic function, or not fixed, but estimated at a logistic function, and, for gen rec, we ended up with a similar model type as the commercial pound net,

with an estimate of age-zero, fixing age-one at one, and then an exponential decay model for age-two-plus, and gen rec and shrimp bycatch discards were fixed at age-zero and age-one values.

F_init was another sort of troublesome parameter for this model, one of the reasons that drove us to increasing the start year to 1986. The base model estimate ended up being at 0.59, and part -- Just to reiterate that this estimate realized predominantly on the commercial handline index, commercial handline landings, commercial pound net, and general rec age comps, or commercial handline and age comps, to inform the minimum, approaching the estimate from one, and so, I mean, this just reiterates what I said, that a lot of our age comp didn't start until 1990, and so pretty much the furthest we could take back from that was apparently four years, with a 1986 start year.

Here's the profile, to sort of show how the model was responding to these different values of F_init. The vertical line is the base value that we settled on, or that was estimated, ultimately, and that's 0.59, and so this gives you a sense of which data sources were sort of driving that estimate, and, as was noted in the previous slide, you can see, down here, the commercial handline index was one thing that was driving it in that direction, age comps from the general rec. Anything that shows that minimum near where the vertical line is is sort of in agreement with that F_init value. I will let you guys study that in more detail on your own.

We profiled across the starting it, which allows us to sort of look at the ending estimates, and this is showing, across all these values -- This is almost an overkill profile run of many, many, a bunch of runs listed here, and the end result here is just showing that it doesn't really affect the downstream estimates hardly at all, and most of the effect is just in the beginning part of the time series estimates, which is what you would expect, particularly for a species that is shorter-lived, like Spanish mackerel.

M profiles, and so we, of course, always want to look at a model and determine can we estimate M, and is it reasonable, and, in this model, M wanted to go to a higher value, and then it started hitting some bounds. Rob noted here that a higher M would probably allow for a better fit to the general rec and the commercial pound net comps, because they have a bigger drop from age-one to age-two, but the fact that we couldn't estimate it is also possibly a symptom of conflicting information from indices and removals, and it's one of the reasons that you generally want to look at natural mortality in these models, because it kind of can point to these kind of symptoms of conflicting information, and this is a list of some of the bounding issues we ran into with M going up to 0.7, but the base value is fixed at 0.35.

Again, here's some profiles, if you want to take a look at that. The vertical line is the base model fixed value, and so just, again, this reiterates that some of the likelihood components wanted to go to a higher natural mortality value, but, as noted in the previous slide, that can be tainted and problematic when it's conflicted with selectivity settings and how strict the selectivity settings are, if they're fixed, or if the parameterization is such that it doesn't give it enough flexibility, and you get a confounding between M and selectivity.

More M profiles. There's an interesting pattern for the young-of-the-year. We don't typically see sort of two little dips, and now more M profiles, and these are all -- I think these are in the report, but maybe not, because I actually don't have page numbers up there, and so, again, a lot of the data wants to go to higher M values. This is for landings, which usually we don't expect landings

to inform natural mortality too much, and you can see that by the scale of the change in the negative loglikelihood, very tiny changes.

Steepness, our other favorite parameter to examine for estimability and whether it's reasonable, and, basically, the conclusion for this assessment was there is almost no signal from the data to inform steepness, and the model estimated that steepness was around 0.73, when we had a starting value of 0.75, and the SEDAR 28 value was based on likelihood profile, but, essentially, the conclusion is there no good information to modify that previous decision at this point, and so we stuck with what was done in SEDAR 28, and, again, here is some more profiles, to give you a sense of what's going on there.

The vertical line, again, is our fixed value from SEDAR 28. It's not too far off, if you were -- You now, one of the primary data sources that typically informs steepness is the stock-recruit data, and you can see here that the minimum for that profile is somewhere right around in this range in our fixed values here, and so not too far off, but also do note the change in the negative loglikelihood is pretty small. Just for reference, plus or minus two whole points is usually considered a significant level, and so, from a significance standpoint, you wouldn't say any of these values are different from each other, and the same goes for this, and so, yes, I think the bottom line is there really was no information for steepness from the data, or from this particular model configuration. There is a very tiny likelihood response, and that's even tinier.

Let's dive into the base run. After those explorations, we did end up with a base run model, and, as I said, the base run basically started in 1986, after some exploration of different starting years, and we did allow the model to estimate initial F, despite some problems with that early on, and there's no information on what M, or steepness, really should be, and so we stuck with the fixed values from SEDAR 28, in part because this is an operational assessment, although it's a ten-year-old operational assessment, but it's, nonetheless, an operational.

Here's a quick plot sort of showing all the information sources that feed into the model, and this is an SS-like figure that we've adopted for BAM too, just so the SS crowd can get comfortable with this as well, and it basically shows what years we have data for what data type, and you will note here that these are where we have pooled age comps for the commercial handline and the commercial cast net.

Index fits are shown here, and so the commercial handline fit is to the left, and the general recreational index fit to the right, and clearly there are some runs issues in the residuals here for the commercial handline, and maybe not quite as bad for the recreational index fit, and here's the base run fit for the young-of-the-year index, which has a few run periods, but it definitely looks better in the most recent years, which is also when the variance estimates for that index get reduced.

Comp data, I will just sort of breeze through these, and this is our usual figure showing basically all the individual year fits of the comp data, and I will let you sort of peruse through these on your own, and hopefully you got a chance to look at these in detail prior to this presentation. Overall, I would characterize this as pretty good fits, in general. There are a few years where there is some data that's off, and, more than likely, that's just -- That could be an actual age comp sampling issue, more than the model not capturing a dynamic or something. In general, pretty good fits though, and I will be glad to come back to these, if there are specific questions about those after the presentation.

Bubble plots, and these are just sort of another way to look at these fits, is to show positive and negative residuals, and this is for the pooled commercial handline. Commercial gillnet is a little better, in terms of numbers of years of data, and there's pretty good fit. The correlation values are pretty high, and the combined sort of fit is almost spot-on, and so this is a summary fit that shows the fit across all years combined.

Commercial pound net, and another pooled age comp for commercial cast net, and you can see here where perhaps our functional form that we assumed for the selectivity had some challenges, and this actually wasn't even really a functional form, and this was one of those where we fixed things and tried to adjust it, but it's -- I don't know if that's a selectivity issue or a data issue, and it's hard to tell.

Then age comps from the general rec are shown here, and I think, as was noted earlier, the general rec wants to have a pretty steep drop from age-one to age-two and onward, and even our selectivity that we used for this didn't perhaps fully capture that, and that shows up here, and you can kind of see, starting in 2003 onward, you see this consistent pattern of negative and positive residuals, and that's just reflected here in the overall fit, and it's just not capturing that very well.

Here's another way to sort of examine the base run estimates of age comps, and this is -- But it highlights cohorts, and so similar colors are chasing a cohort through time, and this is from the commercial gillnet. The observed is the bars, and the predicted in the dots, model predicted, and it's just another way to look at those fits. The same thing here for commercial pound net, and you will see these colors change -- Sometimes when we have -- Well, actually, here, you're not seeing the gaps in the data, but the previous plot had some gaps in years of data from 1993 to 1995, and we're missing 1994, and so you see the color pattern shift a little more.

General rec data, and so one of the things you can see is the fit is pretty good in the early years, but it's these recent years where there is just a high spike in age-one fish being captured, and it looks like the fishery is being supported almost entirely by age-ones, and that's a bit of an overstatement, but more so than the other fisheries.

This is just to show that F_init and what the age structure looks like, the final age structure, and then here's the sort of Z, total mortality, curve and what it looks like for those initial values, and so we did allow for age-specific estimates of F_init, or age-specific deviations in that initial age structure, and that's what is shown here, and so then this is your final age structure that you get for that initial condition, and this is just what the F and Z values look like with selectivity accounted for.

This is the overall selectivity, and so, if we weight the selectivity by the F values, or the fishery values, this is sort of your overall population-weighted selectivity and what it looks like, and this is for the landings, discards, and then total, when you combine landings and discards.

Here is the fleet-specific selectivity estimates, and so you will recall, you know, that we tried to use an exponential decay model here for the general rec, by fixing after age-one, and you can see it's just still not doing a very good job, and it's the same thing. Maybe it does a little better here, but it's just hard to come up with a good parameterization for selectivity when you're only dealing with as few ages as we are in Spanish mackerel, and you, obviously, wouldn't want to hit this with

ten-parameter double-normal selectivity model, when you only have ten ages, and here's the selectivity values for the bycatch, which, of course, is all zero and one-age fish.

Growth models, and then female maturity. Here they mature rapidly, up past 90 percent by age-one for female maturity, and here's our per-recruit curves, and this would be our FMSY value, which then, from this plot, you can look over to the side to see that this would correspond to probably an SPR of around -- My eyeballing it, it's probably a little over 30 percent, 35 percent.

Equilibrium values, as a function of fishing mortality, and equilibrium landings, essentially, which defines FMSY as the peak of this curve, exactly. One of the things that Rick Methot always likes to point out about these is we get hung up on the exact peak of this curve, but note that there is quite a wide range of F values that result in essentially the same level of catch, under equilibrium conditions, and that's the trick.

The stock-recruit curve, and this is just another way to look at the stock-recruit information, and so these are just sort of a breakdown of the landings by fleet, and summed up in different ways, either as a relative scale, proportional scale, or an absolute scale. Just a thing to note is these are model estimates and not the actual data, but they're pretty close, because, as you will recall, catch-at-age models are sort of forced to fit catch nearly exactly, but, here, you can see where we are relative to sort of an MSY value for landings. In the recent years, there's been quite a bit of increase.

This is for discards, and there's a notable increase in discards in the recreational fishery. Here's a plot of sort of the population, both in numbers and biomass, broken down by age, just to get a sense of what the age structure is doing over time and what the total population size is doing over time, and there's a fairly flat overall trend, ups and downs, but generally no total overall time series trend here.

Fishing mortality up top, looking at proportions by age of fishing mortality, and just more plots. We have plenty of plots, and we're getting really good at that with the BAM model. We get to have copious amounts of output. Another sort of SS-inspired plot is to look at the mean age coming out, both in terms of numbers and biomass, and, again, just looking for trends in that, and, in this case, it's pretty flat.

Here is sort of the biomass time series itself, with respect to MSY benchmarks, and it's fluctuating right around the MSY value for the entire time series, and here's our more important stock status indicator, is spawning biomass with respect to the MSY value, as well as the MSST value, and the stock is above both lines, and so we would say this stock is not overfished. Again, it's just another way to look at these. Like I said, copious output.

Recruitment time series, this is the recruitment that we should be seeing at the MSY value. Here is the actual log deviations that are being fit in the model, or not fit, but the parameters themselves that are being used to estimate recruitment, and those are deviations about the stock-recruit curve, as a reminder. Then fishing mortality time series for each fishery, and what is shown here, because these plots are so small, is sort of what the scale is for each of these, and so this corresponds to the sort of top-end of each of these figures, and that's what that number represents, just for a visual cue, and so the general rec accounts for most of the fishing mortality.

Here's total fishing mortality, or actual no. Not total. This is the discard mortality. Sorry about that. I got ahead of myself, and you can see these values are quite low compared to these, and we've got a top-end fishing mortality rate of 0.5 for the general rec, and here we're looking at 0.06 and 0.025 for discard fishing mortalities.

Here's the one, and this is total F, and so this is our figure for determining fishing status, and, although the last point is over the line, we used a geometric mean of the last three years, which is not shown here, but it's below the line, and so, thus, the stock is not overfishing, but, obviously, that trend is something to be mindful of. Another way to look at fishing mortality is the stacked bar plot here of the fisheries and the discards, so you can get a total sense of mortality removals, or mortality associated with removals, and, again, general rec is the dominant source here in the most recent year.

A phase plot, basically showing where we were with respect to overfishing and overfished throughout time, and this is what we affectionately call the happy zone, where everything is good. You're not overfished, and you're not overfishing, and this would be our sort of final stock status indicator, in the red diamond, but, again, noting that the most recent, by itself, does suggest overfishing. This was in an absolute scale, and here we are in a relative scale, and this is relative to MSST, which is the definition of overfished.

Sensitivities and retrospective analysis, the sensitivity runs that we ran included a high and low M, high and low steepness, high and low discard mortality, and then we tried dropping the commercial handline index, which, if you recall, that was the one that had the really long runs of residuals and was not exactly the best fit, compared to the others. Here's the effects of dropping that commercial handline index slightly, or stock status indicators when you drop that index.

M, rescaling M, which behaves as we normally see for these models. Higher M results in a better stock status, and lower M is a worse stock status. Discard mortality rates, there is very little influence on that, probably because discards are pretty small relative to landings. Steepness is similar to M, with kind of predictable outcomes here. Higher steepness, worse stock status and lower steepness is better stock status, which actually is typically -- That is kind of the reverse, now that I think about that.

Retrospective analysis, and I don't -- You know, we didn't compute, and I don't think we needed to, anything like a Mohn's Rho or some sort of retrospective bias, because there doesn't look like there is any, and recruitment is noisy, as you would expect, particularly for a short-lived species like this, and the terminal year sort of is important in helping to pin down that last year of recruitment, and, as you peel back, it just gets a little -- It's just noisy, which is typical, and this is retrospective with respect to the stock status, and it doesn't change much, and I'm not seeing any pattern of concern.

Uncertainty analysis, most of you should be familiar with our MCBE, or Monte Carlo Bootstrap Ensemble, approach to characterizing uncertainty. It's a two-stage, or two-step -- It's not really two steps, but two pieces of uncertainty modeling that come together, and we do Monte Carlo draws on data, or parameters, that are fixed, and then we also do -- We bootstrap the data itself, based on sample sizes and error estimates of the data sources, and this is sort of a rundown of what we included in that.

The important thing to usually look at is what kind of bounds and conditions we're putting on M and steepness, and those tend to drive the overall uncertainty estimates, and so, in this case, we're using bounds from 0.3 to 0.42 for natural mortality, and steepness -- We've got bounds from 0.6 to 0.9, and discard mortality, which, as you saw, was a very minor component, but we did have a range from 0.1 to 0.3 for that, and then, of course, we resample the age-and-length comps, indices, landings, and discard information, based on the estimated uncertainty values for those inputs.

We run the MCBE far enough out that we feel like we've got good, stable estimates, and this is just sort of an indicator of that, and so, in this case, we ran it 4,000 times, and estimates of uncertainty started to saturate, which is what we like to see, and it looks like we probably could have got away with only doing 1,000, but, for whatever reason, 4,000 has been our sweet spot for a lot of assessments.

Now, we do usually have to filter some of those MCBE runs, and we look for runs that didn't coverage, by looking at the maximum gradient that comes out of the Hessian, but, in this case, we didn't have any that didn't -- That we would have characterized as not converging, but then we also look at bounds, where the parameters are hitting bounds, and, in this case, we did have twenty-three runs that we filtered out that were hitting bounds, essentially, or at least getting close enough to the bounds that the fit was being affected.

Those 4,000, minus twenty-three, runs were summarized, and this is the output for our uncertainty estimates, and this is FMSY. Again, the vertical line is the point estimate from the base run, and the dashed line is the median of those MCBEs, and so we're looking at estimates of FMSY, SSB MSY, MSY, all of our MSY benchmarks here. The same thing for R0 and steepness, and, of course, steepness, we're pretty much dictating the shape of that.

Stock status, and so this would be the uncertainty in our stock status indicators, based on the MCBE output, and, again, noting that a common practice is to take a geometric mean of the last three years for F, but SSB is just the single point value for 2020, and here is looking at some time series with those MCBEs, showing the 5th and 95th percentiles from those runs, and so a tiny, tiny little faction that is dipping below the overfished line, because MSST is our threshold for overfished, and this is just MSY. This is FMSY, or F relative to FMSY.

Here is sort of the more important plot, and this is all of those MCBE runs shown on the phase plot, where they all landed with respect to overfishing and overfished, and so, from this, you can surmise that there is about -- Well, there are 7.1 percent of the runs that did indicate overfished and overfishing, and 5.9 percent of the runs indicated overfishing, and only 0.3 percent of the runs indicated overfished and not overfishing. The crosshairs here, that's the base run estimate, is at the center of that, and then these are the 95 percent confidence ranges in both directions, and so this data -- This figure has a lot of information in it. The same figure, but we just use the MSY denominator for biomass, for spawning stock biomass.

Now projections, and so we -- I am trying to remember how many -- I guess I will run through them, but here's an F current projection, and so, if F were fixed at the three-year average, shown here, and so we're assuming management, in this case, would start in 2023, and so that's why this is still showing, for 2021 and 2022, that trend continuing upward. This is spawning stock declining, and here's recruitment, with uncertainty values.

Here's the same projections, but just zooming-in on the most recent years, and the projection years, in fact, and so post-2020, and remember that 2020 is the last year in the assessment model, and so this is our predictions for 2021 through 2025, and this is with an F current. This is FMSY. Again, zooming-in on just the projection years, and 75 percent FMSY.

That's it for the sort of first initial set of projection analyses, and so we also have research recommendations, and those are in the document, and I don't know if I need to read these off and go into detail, but certainly we're open to more research recommendations that might be added to this, based on the SSC's review of this assessment. Some of the ones we wanted to highlight, which are sort of sampling improvement issues, is getting more robust shrimp bycatch estimates is very critical. Those are very poorly estimated, frankly, and getting better length and age samples from each fishery, including discards.

This is more research recommendations. It would be nice to get, you know, fishery-independent or some other independent estimate of natural mortality other than life history and variance, but that's what we typically have to rely on.

It would be good to have age sampling from the recreational fishery. We do suffer from limited age sampling in that sector, and, most importantly, which is in bold letters here, probably the single-most important thing that could probably help our understanding of Spanish mackerel, is getting a fishery-independent survey for our coastal pelagic species, and we just don't have that. It's a difficult task to do, which is partly why it hasn't been done, because trying to come up with a good survey method for something like Spanish mackerel, that is -- I don't want to say highly migratory, but migratory enough to be a real pain for sampling, and it comes in big schools, and, as abundant as Spanish mackerel is, it poses a lot of survey challenges.

I will just finish off with, for those who like scombrids, like I do, and Spanish mackerel is in the genus scomberomorus, and we've got three species in our region that are in that genus, including king mackerel, cero mackerel, and our Spanish mackerel, but -- We think king mackerel are rather large, but just meet the Chinese seerfish. That's a big sucker, and it gets up to 180 pounds, and it's even been known to go up the Mekong River. I would like to see our commercial cast netters try to hit a school of these guys. Anyway, I just thought that would be interesting to folks that don't know much about some of the scombrids that are found around the rest of the world, and I think that will end my presentation.

DR. BUCKEL: Thanks very much, Erik, for that excellent presentation. Like our presentation from this morning, it was very thorough, and I much appreciate all the time you put into that, and so what we've decided to do is take clarifying questions from the SSC members, and then, after that, we'll open it up to public comment, and so, SSC members, please raise your hand, and we will take you in turn.

DR. CURTIS: Just briefly, Jeff, I'm taking control back of the presentation, and for Erik as well, so we can show the raised-hands menu. As Erik mentioned earlier, if you have a specific question about a slide, if he can direct me to that number of that slide, that would be very helpful. Thank you.

DR. BUCKEL: Thanks, Judd. All right. We've got Yan Li. Yan, go ahead.

DR. LI: Thank you, Jeff. I have questions regarding the steepness and natural mortality, and, based on my understanding, in this assessment, natural mortality is fixed at 0.7, and this value is based on the likelihood profile, and is that correct?

DR. WILLIAMS: It was based on likelihood profiling from the original SEDAR 28 assessment.

DR. LI: Okay.

DR. WILLIAMS: So we didn't have any indication, from this model, to change that, necessarily, but, again, the model didn't necessarily strongly support that conclusion either, but, just because this is an operational, the way to proceed is we didn't -- Notwithstanding any evidence to change it, we left it as-is.

DR. LI: Okay. Thank you, Erik. My question is, because we don't have information for natural mortality, and we've got to fix it at some value, with some supporting evidence, and using the likelihood profile is one way, and I wonder if -- Another way is to fix the value based on the life history parameters and those empirical relationships, and I don't know, and what is the -- If we come out with a natural mortality value that is based on life history, like the max age, based on the Hoenig relationship, and what that value would be and how different it is and why we didn't choose to fix the value based on the life history. This is my question about natural mortality, and, Jeff, do you want me to continue my second question about steepness, or --

DR. BUCKEL: Erik, were you going to respond to that?

DR. WILLIAMS: Yes, and I was just looking at -- I was just pulling up the slide we had on natural mortality, and, I mean, I think the SEDAR 28 estimate is not -- It's not that far off, and so I think -- Again, I don't even remember -- That was twelve years ago now, or ten years ago, and how we ended up fixing it at that value, but I think, if you look at Slide 16, you will see that it's not too far off from sort of Lorenzen-based methods anyways, and so we did adjust it based on the growth model in this run, or in SEDAR 28, I guess is what I'm trying to say, and so that -- I don't know, and maybe Rob has -- I don't know if he's on and if he wants to speak up, or if we could let him speak up, and this is where he might be able to fill in more details on that than I am able to.

DR. BUCKEL: While Rob is coming on, if you go to page 72 of the SEDAR 78 report, it's got the section on natural mortality rate, where it describes how the Lorenzen and Hoenig equations are used. Go ahead, Rob.

MR. CHESHIRE: We used the same method as in SEDAR 28, where we used the Hoenig fish only to rescale, or to get the constant value of 0.35, and then we used the Lorenzen to rescale, and so, really, we just updated the growth parameters to the same method that was used in SEDAR 28.

DR. BUCKEL: I think the confusion was the steepness, and we were talking about how the steepness in that -- Yan, your question was related to natural mortality, and so that's that 0.35, or scaled with the Lorenzen weighted age, or weight versus natural mortality. Sorry.

MR. CHESHIRE: If the question was for steepness, we just went with the SEDAR 28 value, because we couldn't come up with anything better, based on our likelihood profiling.

DR. BUCKEL:  Thanks, Rob.  Yan, does that answer your question?

DR. LI:  Yes, and my question for steepness -- You kind of already answered half of it, by my question for steepness is, when I look at page 64, you show the spawner-recruitment relationship, and, to me, the relationship is very weak.  We can fit any line there, and there is no strong relationship, based on what we have here, and so I'm just wondering -- In this assessment, steepness was fixed at 0.73 in the model, and, again, because there was no information, and so I wonder why -- Because there's no relationship, a very weak relationship, between S and R, why we don't pick a -- You know, fix to a larger value, to indicate there is no strong relationship, instead of 0.73.

DR. BUCKEL:  Rob or Erik, do you want to take that?

MR. CHESHIRE:  I think we were kind of stuck in this -- It's interesting that we fall back to that this is an operational, given the number of other things that we changed, but, you know, steepness would be a  pretty big change.  We did discuss just removing the spawner-recruit relationship altogether and using average recruitment, but I think we had problems with that run.  Yes, we did give it some thought, but, without any other information, we didn't feel like we had anything better to go with than the SEDAR 28 value, and, given the time constraints, we really didn't delve much deeper than just thinking about just running it without the spawner-recruit relationship.

DR. WILLIAMS:  Yes, and I will add that that's exactly right.  We had a lot of angst with this model, in the sense of it being an operational and being a ten-year-old operational model, because there were a lot of things that probably needed to be readdressed, but, you know, there is this balance between what can we reasonably redo, versus not, and I think one of the discussion points that came up is, if we change the stock-recruit curve, we're actually --

We could be significantly changing the benchmarks from what were done last time, and that seemed like sort of running afoul of the constraints that are upon an operational, although, as Rob pointed out, we did make a lot of other changes, but most of those I would view as sort of minor update changes that you would do in any assessment, but changing the actual stock-recruit curve is a big one.  Now, does it need to be revisited?  Absolutely, and it's just, under the guise of an operational, it didn't seem like an appropriate venue to do it in.

DR. BUCKEL:  Thanks, Rob and Erik.  That's helpful, and, you know, one of the things we're tasked with is if the TORs were addressed, and one of those was, if available, include any improved information on steepness for similar pelagic species, and so has there been any meta-analyses were folks have grouped steepness for pelagics that has come out recently, where we could say, oh yeah, this is similar for other small coastal pelagics?

DR. WILLIAMS:  I mean, I will jump on that one.  I mean, we just don't -- Part of that is we don't have good fishery-independent data for our pelagics, and so our estimates of stock-recruit relationships might be pretty poor, partly because of that, but also just we don't have many stocks of those either, to sort of do like a meta-analysis.  You know, when you're talking reef fish, you've got all kinds of snappers and groupers that you can put into a nice little meta-analysis and come up with some general conclusions about potential cross-species patterns of steepness, and you can't really do the same with coastal pelagics, unless you want to start pulling in highly migratory, but

I think they're too different, that you wouldn't want to start inferring conditions from highly migratory, at least ICCAT-level species, with Spanish mackerel and king mackerel and cero.

DR. BUCKEL: Thanks, Erik. Next on the list is Genny. Go ahead, Genny.

DR. NESSLAGE: Thanks, Jeff, and thanks, Erik, for the presentation and, Rob, for all your hard work. I just am a little concerned about the level of age composition sampling, particularly the bit you mentioned about the commercial handline and cast net not meeting the minimum sample size for most years. I'm looking at like Figure 11, and it looks like the magnitude -- Am I reading this right, that the magnitude of those landings are on par now with the gillnet fishery? A, am I reading that right, and, B, how worried should I be? Do you think this assessment is well informed in the last ten years, regarding age composition of the catch, because it's probably anchoring pretty heavily on that, given your indices are kind of all over the board.

DR. COLLIER: What page number was that, Genny?

DR. NESSLAGE: Slide 11. Maybe I am misinterpreting. You can see the yellow and blue lines are now on par with the gray lines, but they had the pooled age comp positions across I think all years, and am I correct, and then so -- If two-thirds of the landings aren't characterized well by trends in age composition, then what does that say for this as an age-structured model, I guess is my real question?

DR. WILLIAMS: Yes, and, I mean, all good points, Genny, and something to be concerned about. I would say though that, as age-structured models go, we do have a lot of years of age data in other sources, and, as long as those are accurately charactered, you know, missing a complete sector's source of age comps isn't that deadly, in terms of sinking an assessment, if you have other age data to back it up, but I agree that these sample sizes could be a lot higher, or should be a lot higher. They are approaching some pretty low levels,

DR. NESSLAGE: Just a quick follow-up, if I may. What's going on there? Is it -- Is there a reason that these two aren't well sampled, compared to the gillnet? I'm just curious.

DR. WILLIAMS: I honestly don't know enough about our sampling program to understand why those -- Why we're not getting that many samples, and I don't know if anybody else on the call has any information about that.

DR. NESSLAGE: Thanks, Erik.

MR. CHESHIRE: It's interesting that these sample sizes, if we look at them by trip, they don't meet the requirements, but a lot of them would have if we did it by fish, but all those schools are, you know, corelated by size, and so that's why we use a trip limit, but it might be that -- I'm just guessing, and it might be that the sort of targets for sampling are based on the number of fish and not on the number of trips sampled, but maybe somebody has more information on the commercial fishery and would know more about that.

DR. BUCKEL: All right. It looks like we're to that point, and is that -- To that point, Dewey Hemilright, if you have some information on the sampling of ages, age comps, from the commercial fisheries, that would be great.

MR. HEMILRIGHT:  I think what people might have to understand is, if you look at from Florida north, the way the different fisheries are prosecuted, whether it be by cast net, by gillnet, by state water or federal water, by the state-water fishery in North Carolina, commercially, and it's a gillnet fishery, and the pound net fishery, whether it be in North Carolina or Virginia, and you have a multitude of some states having federal fisheries, and some states the majority are commercial fisheries, and so it's just frustrating to see, at this time point, that we don't have these -- A generous amount of samples, given that these fisheries are prosecuted up and down the coast, in different areas, in large amounts.

It would be interesting, and maybe not at this point, but in the future, or further, to exactly show what state is accounting for which fishery and which gear they're using and the percentage of the bycatch that is being reported, because, when we look at some of the furthering of the data that can be needed for research, it needs to be pinpointed on exactly what you're asking for, because it's out there, but it just takes some work, because there is so much diversity of where these fish are caught at, given which state are you in and what gear are you using.

One other thing, particularly to the gillnet size, is it's going to be limited to a certain size fish that you're going to be catching and discarding, because of your mesh size.  Now, further down the coast, with a cast net, and I'm not very familiar with that, and I'm not familiar with the Florida fishery and what size they're catching trolling, but I do know that we have a variance of all kinds of fisheries that account for this magnitude, and they're all using different gear.  Thank you.

DR. WILLIAMS:  I will follow-up, and Dewey is spot-on.  I mean, this is one of our more complicated fish species to track, because it's federal and state waters, and mostly state waters, I would say, and it depends on the state sampling programs, and they're not often focused on this particular species, and they're focused on other species, and so it gets really complicated, but it is -- I agree with him too that it's a shame that we don't have better samples.

One of the things that our region doesn't do, but the Northeast does, is they have like thresholds for number of samples per metric ton, or something along those lines, that they have sort of minimum sampling requirements, and we just have nothing like that.  We don't even look at that, and so I couldn't even answer Dewey's question of like where are the samples coming from, in terms of states, relative to the number of landings they have per state and that sort of thing.  I just don't know enough about that, but I think he's right that it's complicated.

DR. BUCKEL:  Thanks, Dewey, and thanks, Erik.

MR. HEMILRIGHT:  Can I follow-up?

DR. BUCKEL:  Yes, Dewey.

MR. HEMILRIGHT:  I believe that there's been Northeast data that's been done, and I don't know if it was used, particularly for the gillnet fishery in North Carolina, which is a 99 percent, or 98 percent, state-water fishery, probably since -- Where they had a lot of observers from the Northeast, probably since about 2018 and 2019, and I'm not exactly sure what year, and, even though they had restrictions on the amount of gear and trip limit reductions, but some of the basic things, going forward, would be that they have to -- I don't know how hard it is, but would be to show what is

caught where by what state by what gear, but for everybody to get a better understanding, and, at this time and level, we shouldn't be scratching our heads to figure this out, and this should be like 101 of what's in the report, or in the data workshop, of explaining. Thank you,

DR. BUCKEL: Thanks, Dewey. I think we can put that under the -- I guess that would fall under the research recommendation, but we need to make sure that that -- As Genny pointed out, we just don't have the age comps for that cast net and hook-and-line.

DR. WILLIAMS: Yes, and, just to clarify, I think we could get like landings and how they're broken out by gear type and by state, but what we don't know is how the sampling programs then match up to those gear types and states and whether they're in state waters or federal waters and all of that, because that's the part that gets confusing for me, is how the sampling programs overlay all of those gear sectors and state-versus-federal and all of that.

DR. BUCKEL: Okay. Thanks, Erik. All right. Next on the list, I see Jie Cao. Jie.

DR. CAO: Thanks, Jeff, and thanks, Erik, for the presentation. I guess I just have a comment on the abundance index, because I'm a little bit concerned about the model fit to the abundance indices. If we can go to page 14, we can take a look at those indices, because I'm seeing a very like extremely high value for the first year, for the abundance index, and I believe that's 1986, and I'm assuming we don't have the estimate of uncertainty associated with those data points, because we fixed the CV at 0.2, but I'm just curious how much the results are driven by the high variable abundance index, and then I realize -- Can we go to page 84?

When we drop the handline index, you can see the estimate of spawning stock biomass suddenly became pretty large, and that could be the inference of that extremely high value, and so that suggests, to me, that those two indices are providing conflicting signals, and so I'm just not sure how we're going to deal with that, because we don't have the CV for those data points. I mean, I'm just curious, and let's just say, if the model goes from 1987, I mean excluding this data point, are we still getting the same results? I mean, that's just my curious questions, or just my observations.

DR. WILLIAMS: I would say, if you go to page 39, if we do look at the fits, Jie raises some good concerns and issues, and that's one of the reasons that we actually, as a sensitivity run, dropped that commercial handline, is because that fit is just -- Yes, it's borderline unacceptable, but one of the issues was, you know, again, what can we do with an operational assessment, and we wanted to use the same data sources that are coming in.

The other thing I would point out is that high point -- You can see in the fit to the right here on this slide that it's basically ignoring that point, and so it's not -- I would say that point is having zero influence on things, but I agree with Jie that these indices are -- Let's say they leave much to be desired.

DR. BUCKEL: Thanks, Jie and Erik. Next up is Marcel.

DR. REICHERT: Thanks, Jeff. Thanks, Erik. I've got a quick question. I think that the biomass of fishing mortality in the terminal year may be important for our approach, in terms of how we formalize the ABC recommendations. Erik mentioned, and the report also mentioned, the caution,

and the effect of COVID is addressed, at least somewhat, on PDF page 83 of the report. Erik, did you guys discuss that in more detail, and do we have any information on 2021 landings, to see if that's an anomaly, or even if they are preliminary, and how influential they may be, in terms of potential continuation of that trend?

DR. WILLIAMS: Marcel, I assume you're specifically talking about the MRIP 2020 estimates, and, yes, I mean, the reality is we can look at it and discuss it, but, barring any other information, it's all we have on the table, and we run with it, and we hope that MRIP did they due diligence in deciding whether to publish that data or not and that their imputation methods were properly vetted and evaluated, so that it is the best scientific information available, in the end.

To answer your other question, I actually did a quick query, just from the public access MRIP data, and it does look like the 2021 data is finalized, and it is out, and it's actually higher than the 2020 value, and, in fact, it's pretty close to -- If you were to draw a straight line from 2019 to 2021, 2020 would almost lie right on that line, and at least this was just a quick eyeball, and it's not definitive in any way, but just a quick glance at the public access data that's available on their website.

DR. REICHERT: Thanks, Erik, and can you put up the biomass trend, the stock status?

DR. CURTIS: Do you know what slide you're on, Marcel?

DR. REICHERT: Sorry. Although Erik told me to make a note, I didn't. It's basically the overfished and overfishing.

DR. COLLIER: Try 72.

DR. REICHERT: Thank you. Yes, the biomass, and so that's -- We can discuss this a little further when we start discussing our recommendations, but that is something that is of concern, and, as I mentioned, Erik and the report both mentioned some caution there. Although it's not overfished, and overfishing is not occurring, that trend -- That's why, potentially, some additional information would be very helpful, but thanks for that clarification, Erik.

DR. BUCKEL: Thank you, Marcel. Kai Lorenzen, you're next.

DR. LORENZEN: Thank you, and thanks, Erik, for that great presentation. I am, obviously, new to this particular fishery, and I am trying to wrap my head around everything, and I am sort of a little uncomfortable with the level of just questions we have about everything, from, you know, the distribution of the fishery and exactly how it's being sampled to, you know, questions about the steepness and so on, and I'm -- It seems that, time and time again, we sort of bump against the constraints of the operational assessment, and so we know there are things we should be looking into, but we shouldn't, because this is an operational assessment, and so my question is should we not consider, you know, a research track, or at least a standard, assessment, to answer some of those questions that we all seem to have and we don't seem to be able to answer? Thank you.

DR. BUCKEL: Thanks, Kai, and, Erik or Rob, if you want to address that, that would be good, but we'll save some of these more recommendations for the future for when we get into discussion,

but, right now, we're doing clarifying comments, but we can get Erik and Rob's input on your question, Kai, and that would be good to do that now.

DR. WILLIAMS: I will make one comment, and that is I completely agree with everything that Kai is saying. I mean, in the end, you know, we're trying to produce the best assessment we can with the data we have, but we do have these sort of SEDAR process constraints, in some ways, and those are there for various reasons, but, you know, and this one is one that probably should have been more carefully considered, the fact that it's ten years old and was still classified as an operational assessment. I mean, that right there is sort of paradoxical, in some ways, and so, yes, I agree.

I mean, we do what we can with the data and the process we're handed, and, if you guys think there is some serious insufficiencies, then, by all means, bring them up and make an issue out of them, if it's bad enough. That's why you guys are here. I mean, you guys are passing judgement on this.

DR. BUCKEL: Thanks, Kai and Erik. Next up is Yan.

DR. LI: Thank you, Jeff. I have a couple of questions regarding some of the data points, and the first one is for the young-of-the-year, the SEAMAP index data, and, first, the fit to the young-of-the-year index, and, as Jie pointed out, to the index, the indices, is not very ideal, and so, especially when I look to the fit to the young-of-the-year index, which is on page 40, on the slides, and it's not that well, and, also, I noticed that the 2020 data is missing for this young-of-the-year index, and this is the only index for recruits. Plus, 2020 is the terminal year, and so I'm just wondering how this, this missing point in 2020 for this index, would affect the overall outcomes. That's my first question.

DR. WILLIAMS: I'm almost certain the 2020 is missing because of sampling and COVID, and you're right that the most valuable data in most of our assessments is the most recent years, and, when we're missing pieces of information in the most recent years, that certainly has an impact on the final estimates.

DR. LI: Thank you, Erik, and my second question, regarding data, is, when I look at page 11 and 12, we look at those landings data, and, because the initial year we switched to 1986, instead of 1976 in the SEDAR 28, and so we are kind of missing about ten years of data, and that ten years -- Up here, we can notice the high catch, high landings, occurring, with the gray line, which is the gillnet commercial landings, and, when you look at the next page, the MRIP recreational landings, that high landings there, and so I'm just wondering how that affects the overall outcomes, by removing that contrast in the time series.

DR. WILLIAMS: Of course that's -- Hopefully we had a demonstration of how we explored that issue, and we said that F_init was a tough thing to estimate and whether to include those early years or not, and we were just running into too many model instabilities, when we tried to take it that far back, and part of that was because we just don't have age comp data going far enough back. Indices alone isn't enough to necessarily give the information that we need.

I would say, though, that if you look at -- I think it's page 55, and those F initial values are fairly high. I mean, we're estimating Fs on the order of over 0.5, and so those are hopefully reflective

of the initial stock condition being in an already exploited condition, and so, in a sense, it hopefully is taking into account those high landings years that you pointed out.

DR. LI:  That's good.  Thank you, Erik.  My last question regarding data is the terminal year of 2020, and the MRIP data, and it's on page 12, I believe, and so we can see the 2020 data is extremely high, from the MRIP data, and, because that is the terminal year, and, also, when you look at other indices -- The abundance indices are pointing down to a lower level for the 2020, and so I'm just curious how confident we are about this data point at the terminal year for MRIP data, especially when the indices, abundance indices, are showing that it's pointing down for 2020 and how that affects the stock status and the overall outcomes.

DR. WILLIAMS:   Well, first, I would say that those two things are actually incongruent, increasing landings and decreasing biomass.  I mean, basically, it suggests that the fishery is reaching levels that are starting to impact the population, and so that's consistent.  In terms of uncertainty in that last point, I don't have the report in front of me, but I suspect there's something in the report that lists the PSE values that come out of that, but I'm not sure about how they computed the PSEs for that 2020, and so it is a unique year, and I think we all recognize that, that MRIP did some imputations, and I don't know how that ended up affecting their PSE estimates either, and I honestly haven't looked into it that much.

Again, what I would add is, when you do look at the 2021 data -- Again, I didn't do that in a formal manner, but just more of an eyeball manner, and it's a high value, and so it's higher than the 2020 value, and so to suggest that this might be an outlier, because of that imputation, I don't know if that bears truth or not at this point.

The other thing I would add is that Spanish mackerel is one of the better-sampled species in the MRIP program.  In fact, I think it's probably in the top five, and it's up there almost with bluefish and striped bass, in terms of sampling, and so I think the data -- I mean, if MRIP is going to give us a good estimate, they're going to give us a good estimate for Spanish mackerel.

DR. LI:  Thank you, Erik.  That's all my questions for now.

DR. BUCKEL:  All right.  Thanks, Erik, and it looks like Fred Serchuk was able to join us after all, and so welcome, Fred, and please ask a clarifying question.

DR. SERCHUK:  Thank you, Jeff.  I just have a couple of observations.  You know, I'm sure the analysts did their best possible job.  Nonetheless, there have been a number of issues brought up, in terms of trying to stay to an operational assessment for an assessment that had a benchmark, or had a research track, over ten years ago, and it seems to me that, irrespective of what we think about the nuances of this particular assessment, I think we ought to take a message away that it would be a good idea, for assessments that are older, and I'm going to make a comment of whether that's five years old or eight years old, but they should not have an operational assessment, or, if they do, some of the discrepancies that we're seeing, or some of the problems, need to be either looked at more carefully, or the assessment ought to go into a research track.

Clearly, there are new sampling regimes, and the MRIP program, and there are issues related to sampling that have been not well analyzed, and the analysts have a very difficult time, when they're dealing with something that -- Operationally, you just think, well, gee whiz, we just -- An

operational assessment, in my mind, is an update, typically using most of the procedures and most of the datasets that were done in the previous assessment.

When those datasets change, or when those datasets have problems, if you don't have a research track assessment, you're going to have problems, and all I'm suggesting is maybe the SSC needs to think about what is allowed under an operational assessment, and maybe they do exist, but this assessment has exemplified many issues that exist, because the problems that existed in the previous assessment still exist, and the analysts really felt that they were constrained by bringing any newer ways of looking at it, which may have really improved the assessment if it wasn't an operational assessment. I am hoping that the SSC can make a strong comment about that. I know that -- Again, this is nobody's fault, but we're seeing lots of things in this assessment that, it seems to me, if we had to do it over, we would do it quite differently. Thank you.

DR. BUCKEL: Thank you very much, Fred, for that point, and I took some notes, and we'll make sure that gets into our SSC report, and so good suggestions for future SEDAR assignments. I don't see any hands raised, at the moment, and this was our period going through the clarifying questions on the presentation and assessment report, and so we're going to next move into the public comment, but I just noticed the time, and we're about halfway through our afternoon time, and so we're take a five-minute biological break, and it's 2:58 on mine, and so we'll come back at 3:05, and then we'll pick up with public comment on the presentation. Thanks, everyone.

DR. COLLIER: If you want to give a public comment, go ahead and raise your hand, and I'll put your name on the list, and then we'll work through it, trying to unmute you and making sure that we can hear you well.

DR. BUCKEL: Thanks, Chip.

(Whereupon, a recess was taken.)

DR. BUCKEL: First up for the public comment period, we've got Ben Hartig, and so, Ben, please take it away.

MR. HARTIG: Thank you, Jeff. It's great to see that you're Chairman, and you've done a great job so far. I would like to thank the SSC for the opportunity to make public comment on SEDAR 78, and I'm also glad to see that a large number of your group is still involved with our SSC, many of whom I have worked with over the years. For those of you who don't me, I spent fifteen years as a council member, and the latest nine-year term ended several years ago, and I was also council liaison to the SSC for a number of years. Before council appointments, I served as the chair of the Mackerel Advisory Panel, and I also served as chair, between interim appointments, on the Mackerel AP.

I have been involved, at some level, with every assessment that has been done, since the early 1990s, on Spanish mackerel, with limited input into SEDAR 78, although Chip and I -- Not Chip, but Rob and I did have some email conversations about what I thought was going on in the fishery, and those were productive comments, but, unfortunately, my comments are directly in opposition to what this assessment is actually showing.

In my fishing history, I have made more hook-and-line Spanish mackerel trip limits than any other fisherman in the South Atlantic, and, after the gillnet ban in 1995, I was the only boat that actually targeted Spanish mackerel in the overwintering area for two years.

One of the unique aspects about the Spanish mackerel migration is that the entire stock overwinters off of south-central Florida, and those of us who target Spanish, almost exclusively from November to April every year, get a relative year-to-year perspective on recruitment and stock structure. This does not happen anywhere else in the South Atlantic region.

Most of my comments are not traditionally-based stock assessment comments today. I'm a bit more pragmatic in how I approach looking at fisheries, with a focus on landings data and what can be inferred from the data, old school if you like, but there are some things that jump out in this assessment that I will show you in the data.

I would like to thank the SSC for their comments, clarifying comments, before the public comment. They were right on, spot right on, and your questions about stock size, or sample sizes, and what's going on within the fishery and the operational part of the assessments are right on, and so there's one regulation that has positively impacted Spanish mackerel stock rebuilding, and that was the Florida gillnet prohibition of 1995. The removal of that gear allowed more fish to grow into large sizes and ages than at any time in the previous stock history. This has much more insurance in egg production in the stock, allowing for higher recruitment events when the environmental conditions are favorable.

Commercial closures, beginning in 1987, very restrictive quotas were enacted, causing commercial closures almost every year into 1992 and 1993. From this period on, the fishery was generally closed, or the trip limit threshold was met in each of the years, until the 2007-2008 season. After that time, there really were no regulatory closures, or step-downs, that occurred until the 2016-2017 season.

In 2017-2018, the North Carolina allocation was reached for the first time, and, for the next four seasons after that, the trend in commercial seasons was shorter and shorter, and so, in 2017, 251 days. In 2018, 248. In 2019, 156. In 2020, 143 days. In 2021, 119 days. Now, although we bump up against the allocation each year, you can see, from the number of days that the fishery is open, that something is occurring in the fishery, causing abundance to increase dramatically, and so one of the things that we have observed, currently, is the stock biomass is the highest that we've seen in the entire time series, and those same trends are evident in Florida, where, in 2018, the season was 341 days. In 2021, it was 339, and, in 2021-2022, it was 310.

These are the first closures that have occurred in almost twenty-five years in Florida, and it's, you know, occurring with gears -- With cast net and hook-and-line, and you're not dealing with -- Well, you have a limited gillnet fishery that occurs early in the season, but it's nothing like it was before the net ban, and so, basically, you have to have many more fish in the water to be able to have the season close in that short of a timeframe, and both areas are fishing on biomass that is substantially above the biomass at MSY, and there is a high recruitment, most likely a multi-year event, that will be evident in the cast net landings, being at their highest level in the landings series in the 2021-2022 season.

I know I'm skipping ahead and talking about things that aren't included in the assessment, but the assessment story has to tell something, and I told this to Rob, and it has to reflect on what is happening in the out years that you can actually look at after the assessment is completed, and it's definitely not matching what we're seeing in the fishery now.

Some of the problems that I have seen with the assessment, you mentioned -- The sample size problems came up, and I saw it first in the selectivities discussion, and model landings, and this assessment applied flat-top selectivity, like you saw, for the commercial hook-and-line and handline, and both pooled over the years, due to small sample sizes. I mean, Erik was almost like a broken record, listening to him talking about the low sample sizes we have for Spanish mackerel, and it's not the assessment team's fault. They are given the data they have.

It's the agency's fault for not collecting the data we need to adequately delineate the stock structure of this fishery. We don't have enough samples to do that, period. We just don't, and, if you guys want to look into and review the sample sizes that are used to delineate an average catch of five-million fish, and you think those would give you any idea of stock structure, then, you know, by all means go ahead and approve this assessment, but, in my opinion, they don't do it.

The cast net fishery, Erik, if you could pull up page 11 that shows the landings by gear type. Of all the gear types in the commercial fishery, the cast net fishery has the most variability, and it shows the most contrast in the landings stats and landings streams, which would provide much more information into the assessment. If you look at the yellow landings stream for the cast net fishery, you can see, after 1995, there is very low levels of cast net harvest, and even low levels of hook-and-line harvest, and that was actually a low level of recruitment after the net ban that was causing these low levels.

About 2000, you start seeing the cast net fishery increase, and it reaches its highest level in 2004, and that can only increase -- That fishery only increases when recruitment is very high. The cast net fishery, in opposition to what the assessment says, catches smaller fish than any of the other commercial gear types, and it's predominantly based on small fish in the age -- Probably two to three year class, and so those landings decline, and then they uptick again, with better recruitment, and then they go to the lowest recruitment in the time series after cast nets became effective gears, and then we get another period of recruitment, where they bump up again.

Then, as I said, in the landings history, you will see -- In the future, you will see that the landings history is higher for cast nets in 2022 than it was at any other time in the time series, and, like I said, there is more contrast, and you can look at the hook-and-line landings, and, yes, they increase in about the same timeframe, but not in the dramatic fashion that cast nets do, and they don't have any of the dramatic declines, because they fish on cohorts that are in the stock for a longer period of time than the cast nets do. In the cast net fishery, the fish actually learn to avoid the gear, as they get older and bigger, and that is well evidenced by me being a participant in that fishery for a number of years, before I became too old to throw a cast net.

One of the things that would be interesting to do is, since cast net landings are recruitment-based, is to try and graph the cast net landings and the SEAMAP trawl data, and I don't know how you can -- You know, you guys are the math-magicians, but how you can take those landings that we have, landings for cast net, and then mirror them on the SEAMAP index, and I don't know how

that can be done, but it would be interesting to look at, to see how they correspond, because those are real recruitment events occurring in the cast net fishery that increase those landings.

I have really condensed a lot of my comments, trying to get through this in a reasonable period of time. I am going to -- The SEAMAP index, I mentioned what I wanted to try and see you guys do with it, and I will leave it at that. MRIP, in general, the MRIP seems to do an adequate job of what it was designed to do, which is track -- It is a trends analysis for recreational fisheries. It shows increasing trends in the later years, which actually mirrors what is happening in the commercial fishery, and so that trend is good, and it does what it's supposed to do.

It's not designed for absolute numbers, and problems arise in 1981 and 2020, when extreme values for recreational catch show up in the time series. These are extreme values, and there's a -- If you want to check them out, there's a forensic analysis of these years, and available in Nuttall's working paper, and I encourage you to do that, because there are very few trips that account for a lot of landings and discards in the recreational fishery in 2020.

Also, that is the most uncertain year, because we had so much data imputed from surrounding years, to get 2020 actually to have data, and so, also, you might want to look at Cody's 2021 account of how he actually imputed the data and if the SSC thinks that's applicable to actually use for this kind of task.

One of the things that Erik didn't mention, and the assessment doesn't mention, and the key parameters -- I mean, we mentioned that, yes, there was some overfishing possibly occurring in 2020, but you don't mention the catch levels in 2023 out, and they're cut in half. I mean, you have a fishery that's been on autopilot in the assessment interims, from the SEDAR 28 to SEDAR 78, and it's been on absolutely autopilot, and only increasing in biomass throughout the entire time series, and so, basically, this assessment does nothing, in the last years of the assessment, to show that that biomass is increasing. I mean, in fact, it shows it's going to be decreasing, because of the recreational discards and catch, which are the most uncertain qualities in this assessment.

I do believe the recreational landings are higher in 2020, as the commercial fishery has experienced the same kind of increase, although it's in shortened seasons and not in increases, but it's the same variable, but I don't believe the level is as near as what it shows, and APAIS had trouble with the shore mode, and that mentioned in the assessment either. The shore mode is what is driving -- In the recreational fishery, is driving the Spanish mackerel catch, and that is different than at any other points, and I will say points, because it's several years in that regard, in the entire fishery.

I will tell you that the shore mode is not driving what is happening in Spanish, period. It's not. It's just a factor of what we did with APAIS and the transitions, and, when they had a problem transitioning APAIS, the shore mode was the most problematic, and that continues to be the case, and you see that in the data, moving forward, and so those last years of data are nonsensical, to me, from the recreational fishery.

One of the other things in the interim period in the assessment, the 2021 and 2022 landings streams, where you use the three-year geometric mean to calculate the interim numbers -- The problem really stands out, because you use that 2020 estimate in that average, and it really biases your interim values, and it causes overly-high estimates to be continued throughout those interim years, which makes the assessment, you know, have extremely high landings for those periods.

Now, maybe there are extremely high landings in 2021, which Erik mentioned, but I don't believe they're any different than the high landings we have now, and it's just an APAIS-involved transition problem, and new survey methodology, which is causing this to happen.

I asked Rob not to just rely on the time series of the assessment that ends in 2020, and I asked him to look forward as far as he could, to see if the story he's telling in the assessment actually makes sense, and, actually, it doesn't, and the very uncertain MRIP estimates -- Yes, I believe they are increasing in numbers, and these increases can only occur if recruitment is increasing in the later part of the time series, and, unfortunately, the interim projections, or the interim values, use average recruitment, or even lower, to calculate recruitment, moving forward, and so that is a real problem, moving forward, when you have recruitment increasing, and you used a lower value for recruitment. I think I have mentioned most things that I wanted to mention, and I'm going to wrap it up. I took a lot of your time. If anybody has any questions, I'm available. Thank you.

DR. BUCKEL: Thank you, Ben. We appreciate the history you have with this fishery and your thorough deep-dive into this assessment, and thanks for your time on that. Next up, we have Thomas Newman.

MR. NEWMAN: I'm Thomas Newman, and I'm a commercial fisherman from North Carolina, and I've been fishing for Spanish mackerel for the better part of twenty years, and I'm on the Mackerel Cobia Advisory Panel for the South Atlantic, and I'm also on the northern advisory panel in North Carolina, which also deals with the management of all species interstate, and so it's pretty near and dear to my heart. I've been working on this pretty hard, this Spanish mackerel, since 2019, and I know my management of my fisheries pretty well.

Looking at this stock assessment, the first thing I wanted to go through was Slide Number 12, and I think Ben was just looking at it, and I'm going to try not to step on too much stuff that Ben said, because Ben did really well with what he said, but, with the shrimp bycatch -- From what I saw from the stock assessment, the shrimp bycatch was the largest sample of young-of-the-year in the all of the datasets, but what I didn't see was where shrimp effort started decreasing after the year 2000, or the year 2005, and that wasn't corelated to the catch.

There was less effort, and a little less young-of-the-year catch, but I feel like that should be reflected in these graphs, to show that there was also an upward trend in young-of-the-year catch per effort in the shrimp bycatch fisheries, and then that points me to Slide 14, and I was kind of curious why they didn't use the shrimp young-of-the-year bycatch in the indices of abundance. The SEAMAP trawl data was lacking, and also in the terminal year, and I feel like that shrimp young-of-the-year bycatch could have helped give us a better indices of abundance, which that kind of leads me to my next point.

This fish stock is moving north. North Carolina, since 2018, when the Northern and Southern Zones were separated, we have experienced closures earlier and earlier throughout our seasons. The first closure, I believe, was in early November, in 2018, and the 2019 closure was on August 24. The 2020 closure was on June 21, and the 2021 closure -- I'm sorry. It was on July 21, and the 2021 closure was June 27, and, this year, our season was closed on June 21, and the amount of effort in our fisheries has not increased. If anything, it has decreased significantly over the past

twenty years, but, yet, we're still catching these fish faster, and we've also had some management implemented that wasn't in the stock assessment in the year 2019 to 2020.

In 2019, the Northern Zone was closed on 8/24, and, at that time, we didn't have a bycatch allowance, and so there was zero Spanish mackerel harvest until September 27, when North Carolina reopened with a state-water 500-pound bycatch, and the beginning of September is the peak of our fall fishing, when we normally land the big bulk of our fish, and there was a huge effort reduction on our part in 2019, and then again in 2020, and those are state internal waters, where the bulk of our springtime fish are caught, and we were previously using 2,000 to 3,000 yards of net per vessel, and the state reduced that yardage to 1,500 yards.

Then we ended our -- We had our 2020 Northern Zone that was closed on July 21, and that max amount of net was further reduced to 800 yards for the rest of the year, and it was also underneath the 500-pound trip index, and so that curtailed our landings significantly, and it should have showed an increased CPUE for the terminal year, which follows along with the recreational landings increasing. I am kind of sad that wasn't included into the stock assessment, at least that has been talked about.

Also, to add to the data, and I think that was Slide 15 for future management, and the Northeast Observer Data Bank is full of covered Spanish mackerel targeted trips, and 2019 alone -- I had I believe it was over twelve observed trips on my personal vessel, and, similar to that, I just had the same number of trips taken, and the observers measure fifty to a hundred fish of each species on the first and last hauls, and so you're talking about hundreds of measurements, if not a thousand measurements, per trip on fish, and all this data is sitting in there in the Northeast, and it is not being used.

 I have begged and begged for this data to start being used, and I love giving data, and I have asked for observers to come on my boat, and I don't have any conflict with them, and neither does our fleet. Our fleet wants this on the boat, because it's a clean, efficient fishery, and our data is not being used. It would have -- In the stock assessment, in the table with the gillnet age composition, Table 6, and this is in the larger document, and this is in the complete document, this age composition of the gillnet fisheries, and, the last two or three years, 2017, 2018, and 2019, the numbers of fish measured were ridiculous. It was thirty fish, eighty-six fish, and the number of trips. I mean, they could have used the Northeast data to complement this right here, from the shark gillnet fisheries that they did the study on, and they would have had thousands of more measurements, if not tens of thousands of more measurements.

That is something that needs to be in these future stock assessments, because these fish are going further north, and, to keep going on that same northern shift of this stock, Maryland, their landings increased three-times. Maryland recreational landings increased three-times in the year 2021, and the SEAMAP survey doesn't go above Cape Hatteras. They're not going to see young-of-the-year fish in the months that they're being born. I mean, they're spawning in May through August, May through September, and the bulk of these fish are north of Cape Hatteras during the spawning period, and they're not going to migrate south until they're larger fish.

You don't have a trawl, a shrimp trawl, fishery in Virginia or Maryland that would show it in the bycatch either, and so you're missing a huge portion of sampling with these fish migrating further

north, and I think you would see a lot more young-of-the-year if you were to get more samples from north of Cape Hatteras.

I do know that, just looking at some information, the sampling north of Cape Hatteras, by the -- I'm not sure, and it's the trawl survey program for up north, but they saw fish in 2019 and 2020. They saw mackerel, and they said it was highly unusual, but they had 145 young-of-the-year mackerel in their survey, north of Cape Hatteras. NEAMAP. It was the NEAMAP survey, and that's just one of many Northeast surveys that are up there. There's just a lot of data, especially in these terminal years, that is missing from the stock assessment, and it does not reflect what we're seeing on the water, and I think that's it for now.

DR. BUCKEL: Thank you, Thomas. I appreciate the in-depth review that you've made of the assessment and your observations for further north in this fishery. It's much appreciated. Dewey, you're next.

MR. HEMILRIGHT: Well, thank you, and I'm glad there's a lot more smarter and better speakers that went before me. With this fishery, over the last four or five years, it's been an increase of going further north, and the MRIP data shows that, and, particularly to this assessment here, when -- It was mentioned, by Ben, about the shore harvest in Florida. In 2019, it was 360,000 pounds was the shore mode, with a 33 PSE, precision of standard error. In 2020, it jumped to three-million pounds, with a PSE of 38.3, and, in 2021, it jumped to 4.9 million pounds, with a PSE of 28.5.

Given that it's been ten years, and an operational assessment here -- It just kind of doesn't appear what the outcome of this assessment is shown to reality of what's happening in this fishery over the last ten years, and, for fishermen, it's frustrating to hear, when we don't have samples, meaning stuff that is measured, that comes off our boat, both recreational and commercial, that it's probably the easiest to get, even though it does take time and money and resources, and that could really help in the driving of young-of-the-year data deficiencies that are needed, and we don't have it. It reminds me, and I won't get into it, but similar to things with blueline tilefish, but I thank you for your time, and I'm looking forward to deliberation and the questions already asked clarifying from the SSC. Thank you for your time.

DR. BUCKEL: Thanks, Dewey. It looks like there are no other hands raised from the public. The next agenda item is moving into the breakout groups, but, before we did that, I did want to -- If any of the SSC members have questions for folks that just spoke, and I wanted to provide an opportunity for that, given the in-depth knowledge that the public has on this species. No hands raised there, and so if folks could open up the Excel spreadsheet, the SSC breakout assignments, August 2022, the revised, and so the first one that I sent out had breakout group links that were incorrect, and Judd sent out a revised sheet, that Chip or Judd just put up on the screen. Thank you.

There is the three -- Well, there is five different agenda items, and Number 1 is review assessment, 2 is identify, summarize, and discuss assessment uncertainties, 3 is review the assessment projections and provide fishing level recommendations, 4 is SAFE Report guidance, and 5 is the research recommendations and guidance for the next assessment. You can see that Group 1 is charged with the review assessment agenda items, addressing those items, and then Group 2 has Number 2 and 4 agenda items, and then Group 3 has Number 3 and Number 5.

The rapporteur for Group 1 is Chris Dumas, and the rapporteur for Group 2 is Dustin Addis, and the rapporteur for Group 3 is Eric Johnson.  Fred, we did not -- It looks like Judd has already taken care of it, and you were not on the list, but he has added you to Group 1, and so thanks, Judd.

DR. CURTIS:  This is actually a revised, revised Excel spreadsheet that I just sent out earlier this afternoon, and it includes -- Fred, you can join Group 1, review assessment, in place of Alexei, who is not with us today.

DR. BUCKEL:  Scott Crosson has his hand raised.  Go ahead, Scott.

DR. CROSSON:  I am still a little bit lost here.  For the Group 1, and I'm not part of Group 1.  I'm part of Group 3, and I recognize that, but, for Group 1, review the assessment, what does that mean?  Has the SSC -- Since we don't have the benefit of multiple screens, because this is a webinar, has the SSC accepted the assessment?  Do we do that first, before we break into these groups?  Where are we right now?

DR. BUCKEL:  If you go to the overview document, you will see, under the review assessment, the different questions posed to us, and so, just for the sake of time, Group 1 will go through all of these questions, and Group 2, et cetera, so that part of that is, for Group 1, right, for the review, does the assessment represent the best scientific information available, and so that may get addressed, but I see you point, that there could be a trickle-down.

If Group 1 doesn't deem it necessary, then some other work that's done in the other groups may not be necessary, and so I would say we just -- For the sake of time, we're going to have to -- We can't work on this as a full SSC, because we're going to run out of time, and so we'll break out, and everyone do their best.  Judd and I talked that we'll spend forty-five minutes in the breakout groups addressing each of the questions in the overview that are part of your agenda items, and then we'll reconvene as a full SSC and see where we are with addressing these.  To address your question, Scott, of have we deemed it best scientific information available and we're moving forward with it, the answer to that, in my mind, is no, or at least that's part of some of the agenda items that we're going to be addressing in breakout groups.

DR. CROSSON:  Okay.  Thank you.  That will make  Group 3's job interesting, and that's all, but okay.

DR. BUCKEL:  Other questions before we move into breakout groups?  All right, and so, Judd and Chip, we just -- This one gets shut down, correct, and is that how that works, and do we have to leave this one to go to the other?

DR. COLLIER:  This one will stay live, and Judd will stay on this one, and then I'm going to leave, and Nick and Kathleen will leave, and all the SSC members will have to leave, and then they'll come back to the still running meeting that Judd is going to be part of.

DR. BUCKEL:  Great.  Thanks for that clarification.  Okay.  SSC members --

DR. REICHERT:  Can I ask a practical question, because I think I've done this only once, and do we, as members, need to shut down the SSC meeting and then go to another meeting, or can we leave both open?

DR. CURTIS:  Theoretically, you can open up a Go-to-Meeting window and still retain access to the  Go-to-Webinar, using the same account.  I don't know if anyone has tried that yet, but that is, in theory, according to the Go-to website Q&A, and so you're welcome to try it, but you can also cancel out and --

DR. REICHERT:  What do you recommend we do?

DR. CURTIS:  What we've done in the past is just canceled out of the webinars, and everyone has joined the Go-to-Meetings and then rejoined the webinar, once the breakout groups have come to completion.

DR. REICHERT:  Thank you.

DR. BUCKEL:  All right.  Thanks, Marcel.  Any other questions before we move to breakout?

DR. COLLIER:  The only other thing is, Judd, if you can put the links to these different breakout rooms in the chat.  That way, if anybody else would like to join, they are more than welcome to join.

DR. CURTIS:  Yes, and I will do that.  I will  put all the breakout links in the chat group, for any of the public that wants to join, or other non-SSC members, if they want to join the groups, shortly.

DR. BUCKEL:  Thanks, Chip, and thanks, Judd, and so it's about 3:45 right now.  If we go with our forty-five minutes, we would be coming back to the main webinar at 4:30, and so keep an eye on the time, and, as you're moving through the agenda items and moving through the questions for each of the agenda items, and then we will, at 4:30, come back and be ready to provide your answers to those questions, and that is another question.  Chip, or Judd, do you want the rapporteurs to email you with a Word document that contains the responses?

DR. CURTIS:  Yes, that would be helpful, if the group rapporteurs could just email me, and it looks like I have my Outlook access back now, and so you can email that address, and I will compile the notes from each of the breakout groups into the master document that we will then share live, once we resume from our breakout groups.

DR. BUCKEL:  Great.  Thanks, Judd, and thanks to the rapporteurs for taking good notes.  All right.  We'll see everybody back on the main webinar at 4:30.  Good luck in your breakout groups.

(Whereupon, the SSC went into breakout groups.)

DR. BUCKEL:  How are we looking, Judd?

DR. CURTIS:  We're still waiting for Group 1 to come on through.

DR. BUCKEL:  Unfortunately, it sounded like Chris's computer was being glitchy, and so, if you don't get it, I guess in the next minute or two, let me know, and then --

DR. CURTIS:  Okay.

DR. COLLIER:  Jeff, Dustin has his hand raised.

DR. BUCKEL:  Go ahead, Dustin.

MR. ADDIS:  Jeff, we can start on Group 2's statements, or notes, while we're waiting for Group 1, and that's just a suggestion.

DR. BUCKEL:  Yes, and it's a great -- Given that Group 1 was the review of the assessment, I wanted to hit that one first, but we can do Item Number 2, identify, summarize, and discuss assessment uncertainty, and so that would be great, Dustin, if you want to go ahead with that.

MR. ADDIS:  Sure.

DR. DUMAS:  I just sent my notes to Judd, and so maybe they will come through.

DR. CURTIS:  I just got them, Chris.

DR. BUCKEL:  All right.  Stand by, Dustin, and we'll --

MR. ADDIS:  Sure.

DR. BUCKEL:  Thank you.

DR. CURTIS:  Okay.  We've got those.  Apologies for the formatting, and we'll get to that once we get through the meeting here, as long as we can get through the actual meat of it, and then I will format that up and make it look a lot nicer.

DR. BUCKEL:  All right.  Thanks very much, Judd, and so, Chris, if you want to go ahead and report out from Group 1, and then the other members of that group can chime-in, and please add on to Chris's description of what we discussed.

DR. DUMAS:  Okay, folks, and so our group didn't really want to take the questions in order, and they jumped right to the bottom, the last question in our section.  Does the assessment represent best scientific information available?  Our group had questions, strong questions, about whether the assessment was BSIA, and there were multiple points that were made, and our group discussion started here, and so I guess I will start here.

The group though that the operational assessment does not reflect more recent patterns that we're seeing in the fishery and that the stakeholders on the water are seeing.  It was not clear that the current sampling program reflects the current geographic distribution of the fishery, and there were questions about the methodology of the sampling program and whether it reflected the geographic distribution.  There were questions regarding the recreational landings in recent years, especially in the shore-based mode, and so there was additional uncertainty there.

There have been large changes in the fishery, and large portions of the operational assessment are based on the 2012 SEDAR 28 benchmark, which is now over a decade old, and, in particular, the spawner-recruit curve is from the 2012 assessment, and that's likely too old.  There was a general

comment, that multiple members of the breakout group agreed with, that the operational assessment -- An operational assessment may not be sufficient, and a research track assessment may be necessary.

There was also a comment made that SEDAR 78 indicated some of the same model sensitivities, especially with respect to natural mortality and steepness, and that had been identified in the SEDAR 28, and that these model sensitivities were still important and present, and they had large uncertainties associated with them and that the model was sensitive enough to these things that it could affect the stock status, and so that was a problem.

There were questions about whether the jumps in recreational landings -- Whether those reflected increases in recreational effort, or changes in stock size, and what the relationships were there among those variables. There was little new information to inform potential major changes in stock status and little new information incorporated into the assessment. There was not strong evidence for changes in the stock status currently, but there was a concern that projections are not sufficiently robust. Projections are influenced greatly by the terminal year, and the terminal year is highly uncertain, but there was additional information in 2021 that the large increases in 2020 may be continuing, and the 2021 data seem to reflect that.

There's also a concern that increasing catch is driving decreased spawning stock size estimates, and this may be driving the need for future catch reductions, but there was uncertainty about those relationships, that sort of causal chain of relationships. Based on all these points, there was high uncertainty, in our breakout group, about whether the assessment is BSIA. Now we can go back up to the beginning and cover just a few of the other points, more specific points, if we go to the top.

On the first point, the growth model is shifted in one year, and explain the cause of the shift and discuss implications. We weren't sure why the model shifted by one year, nor the effect on the status of productivity of the stock. That wasn't clear to us. The next question, the next bullet, about steepness fixed at 0.75, the stock-recruit data do not show a clear pattern. Given that all the data are just simply a cluster of points up in the northeast quadrant of the graph, and so it's hard to fit a relationship to which that little cluster of points -- There are not any data points available on the left-hand portion of the graph, and so the estimates of the steepness are unreliable, and steepness estimates from similar species are not available to help inform the steepness estimates for this model, for this species.

Going down to the next large bullet, assess uncertainties within the recreational data sources, we didn't have time to talk about the first couple of sub-bullets, the PSEs. Of those things that we did talk about, the recreational catch data from 2020 and whether those were influential on model results, our group made the point that, given that we're using a three-year average, the 2020 estimate is not currently influential, but, given that the 2021 estimates are similar or larger, the three-year average will begin to affect stock status, even though it's not affecting stock status now, or not causing a change in stock status now, but, in contrast, the 2020 estimates are affecting projections. The 2020 seem to be influential on projections, if not current stock status, but they will begin to influence stock status in the future, as that average rolls forward.

The next bullet is describe the impact of the revised MRIP estimates on stock productivity measures, and the revised MRIP estimates increase the uncertainties in the model, and the model

stock size estimates do not support the observed increases in landings. Shore mode landings and associated uncertainties appear to be important and appear to be driving these changes.

Then the last item here that we need to address is are there any issues with the assessment configuration or uncertainties in the input data that limit the use of this assessment for providing stock status and supporting fishing level recommendations, and our group made the point that the stock-recruitment curve from the 2012 assessment is too old to be reliable, and, again, made the point that the stock-recruitment data do not show a clear pattern. There are not sufficient data to get good estimates of that, and so that limits the predictive ability of the stock-recruitment relationship for estimating MSY and FMSY and for supporting stock projections.

Overall, our breakout group was not very comfortable with the operational assessment, as it currently stands, but I will ask the members of my group if they have anything to add and ask them I have misinterpreted anything that was said in the breakout group.

DR. BUCKEL: Thanks, Chris. Other members of Group 1, any -- I was in Group 1, and I know we didn't have a chance to do much wordsmithing, and so, if there's something that wasn't written here correctly, this is an opportunity to correct that, and then, if there's anything that is missing, please chime in. All right. Hearing no one from Group 1, I will go to Marcel. You had a question?

DR. REICHERT: Yes, and I actually have a comment, and it's kind of similar to what I mentioned earlier this morning about the other assessment. Although I don't necessarily disagree with many of the points that were made, I also think we need to be somewhat careful, because, you know, what was the information available, and I think that goes, once again, back to the terms of reference, and so I think Erik mentioned that, yes, the SEDAR 28 is a very old assessment, and I'm kind of struggling with this a little bit, whether or not we should look at this within the confounds of the terms of reference or whether we as an SSC say, well, we realize the terms of reference, but, nevertheless, the potential issues with this assessment make us feel that this -- That we cannot, or we should not, use this as management recommendations, and I would like to hear from other SSC members or others about that point.

DR. BUCKEL: If anyone wants to address that now, please raise your hand. Otherwise, we can continue to move through, and maybe this will -- As we move through some of the other groups' comments, folks can address Marcel's point. Genny.

DR. WILLIAMS: Jeff, I'm sorry to interrupt, absolutely sorry, and I can't raise my hand, and I don't know if I should anyways, but I just want to -- I have some comments, and I don't know if I should speak up or not, and I want to let you guys flow on with your process here, and I don't know if it's appropriate for me to say anything, but I will leave that to you right now, but I can't raise my hand, as it is, because I guess I'm a presenter or whatever.

DR. BUCKEL: Are they corrections or have we done some misinterpreting?

DR. WILLIAMS: Yes, and I have some big concerns with a lot of the statements that are here and what supports those statements and where this is headed, and so there's a lot of things, and Marcel sort of hit on it. You know, we're presented with a process, and we're presented with TORs that we are meant to try and meet, and, to some degree, we should be sticking our evaluation to that process and to those TORs.

Now, I agree there's a lot of -- There's a lot of issues being brought up and were discussed, but I want to be clear on what is the evidence for those and be careful where they're coming from and what the source is and whether they have been validated or not. I have -- I mean, I understand that everybody has concerns with this assessment, and I don't disagree with those, but I just want to make sure that the justification and the explanation of why there are issues that the SSC has with this are communicated very clearly.

The other thing that I would just add is, and this is potentially going outside the process, is are they correctable? In other words, I know that this assessment was done in a certain timeline, and with deadlines, and it came to you now today in the form that it is in now, and the question, for you guys to think about, is is this is a thumbs-up or thumbs-down, yes, it gets used, or, no, it doesn't, or is there any kind of follow-up that could make it usable, or is there some follow-up to explain things more clearly, whatever that may be.

I don't know. I don't know. These are all questions that I honestly don't know the answer to, but the one that I am most concerned about is some of these statements are just -- They're not supported by -- I don't know what they're supported by, frankly, and so I worry about whether -- You know, if you're going to declare something as not BSIA, what is the evidence that it's not BSIA, other than just sort of comments that -- What is the sort of crux of what is wrong with the assessment?

DR. BUCKEL: Thanks, Erik. Good points, and we'll go on to Genny.

DR. NESSLAGE: I'm not sure what to say now. I think, after what Erik said, if we are misunderstanding, then that needs to be clarified ASAP, or we're going to go down -- I see us going one major direction, but, to Marcel's earlier comment, I definitely -- Folks can always address the TORs very thoroughly, but the assessment can still fail, if the performance of the assessment model is not adequate. Then the question becomes, like Erik said, is there enough -- Are there enough red flags here that are real that the performance of the model is not adequate for management, and so I would just say that, just because people adequately address the TORs, it doesn't mean that the model should be used for management, and that's just my two-cents.

DR. BUCKEL: Thanks, Genny. Amy.

DR. SCHUELLER: I guess I will say that I will agree with everything that everybody has said already. Just because the TORs are addressed, it doesn't mean that it's adequate for management use, but I guess my perspective is, when I sit back, and I look at these things that are on the list, I mean, they're pretty standard things on the list. You know, we're uncertain about recruitment and natural mortality, and that doesn't make this assessment special or a red flag in any way, in my opinion.

Then I am trying to think, well, okay, if this went back to the drawing board, like what would ultimately be different, and I'm not sure what would ultimately be different. I hate to see us send something back, and it gets parsed and worked on, and then we get it back and, ultimately -- I mean, we still have the same uncertainties and the same questions, and so I guess I'm challenging the group to like step back a little bit and think about, if there is a red flag here, what it actually is.

DR. BUCKEL: Thanks, Amy, and, since Amy has put that -- Chris, is it to that point, to Amy's?

DR. DUMAS: I would just say that I feel like, in the past, we've had time to like edit our breakout group comments, and have time to work on these, and so this is the result of just copying down, as quickly as I could, points that were made and sending it to Judd as quickly as possible, and so, you know, keep that in mind when you look at these. I agree with Marcel, and I think that the TORs significantly constrain and limit an operational assessment, and that should be kept in mind, and I totally agree with that.

Also, I feel like a lot of the comments that were made were about the data, the data quality, and that the methodology that was employed in the operational assessment -- The steps that were taken were the best that could have been done with the data, but the data just may not be sufficient to support -- It may not be sufficient to be BSIA, even though the methodology -- That analysis and the methodology that was used to analyze the data was possibly the best that could have been done, given the information that they had, but the data just may not be sufficient. Thank you.

DR. BUCKEL: Thanks, Chris. Yan.

DR. LI: Thank you, Chair. I would like to echo what Chris just mentioned, to separate the methodology and the data quality, those two things, in this assessment. I am thinking that all those comments of uncertainties that we brought up here -- Most of them are pointing to the data quality there, but not the methodology itself, and, also, I feel like the assessment is being constrained by it is an operational assessment.

As Erik mentioned earlier, many things, like natural mortality and steepness and recruitment-spawner relationship, those things -- I mean, for an operational assessment, and so this assessment is trying to keep it consistent with the previous assessment, the SEDAR 28, and so is causes a little constraint, and so they didn't explore too many options there, and so I just want to highlight -- Maybe our comment -- Maybe, as an SSC, we need to make this very clear, that the reason why we are not recommending it as BSIA is not because of the methodology and the model performance, but it's because of the data quality and because the model -- How many things can be explored is being restricted by operational assessment. Thank you.

DR. BUCKEL: Excellent point, and that is something that was a theme of -- Several members of Group 1 brought that up, and I don't know if we captured that, Chris, that the operational assessment was constraining to the analysts.

DR. CROSSON: I agree, and I think that's not captured, and I, for one, would support that statement, and I think that was definitely the case. I thought the methodology used -- In my personal opinion, it was excellent, and they did the best they could with the data that were limited and the limited sampling programs that were available, and a lot of unusual events that occurred, like the COVID-19 event, and so -- Thank you.

DR. BUCKEL: Thanks, Chris. Marcel.

DR. REICHERT: I will pass, because the points that I was going to make were made, and I really support this statement, and we may need to wordsmith it a little bit, but I think this is worth a more broader conversation, in terms of the terms of reference for, in particular, operational assessments, or interim assessments, because that does constrain what the assessment team is able to do, but, on

the other hand, when it comes before the SSC, it clearly has implications for our potential recommendations to the council, and so this may be -- It may need a somewhat broader conversation later.

DR. BUCKEL: Thank you, Marcel. Fred.

DR. SERCHUK: Thank you. Yan made most of the points that I made, and I don't know whether -- Certainly the assessment was done within the constraints of an operational assessment, and then we heard, several times, during the presentation of the assessment, well, you know, this was -- We didn't want to go any further than this, because we felt we would be outside the bounds of the directionality that we had by using an operational assessment.

I am thinking this idea of an operational assessment, in many cases, realizing that there were some constraints, may not represent the best science, because we were constrained by the science of ten years ago, and, to that extent, the problems that we had, and, for example we talked about the stock-recruitment relationship as being one, and it was pointed out that, well, we didn't want to change the stock-recruitment relationship, because that was part of an operational assessment, but clearly I got the impression that, if they did have the liberty to change that, or look at it a different way, they would have, and that may have given a different viewpoint on the stock dynamics.

You know, we're caught between a rock and a hard place. The analysts did what they did, and, if they weren't under that constraint, they would have perhaps done things differently, and maybe some of the implications of doing things differently would have meant that, wait a second, the stock status might indicate that, well, we're going to have to reduce catches in the future, because we're thinking that reductions in fishing mortality are going to be needed, but, to a certain extent, that may be based on a model, or portions of the model, that are ten years old, and here's what I have -- I have a problem with communicating that to the public and communicating that to the user groups, and I think that underlies some of the discussions that we had in the first group. Thank you.

DR. BUCKEL: Thanks, Fred. I hope that's helpful to the folks in the other groups and the analysts. All right. I don't see any more hands raised, and we'll keep moving through the agenda items, and so, Dustin, you've got Group 2?

MR. ADDIS: That's right.

DR. BUCKEL: Take it away.

MR. ADDIS: Okay. You will probably see some similar ideas as the first group, and, similarly, I am just jotting things down, and there could be some wordsmithing, obviously, but we were to identify, summarize, and discuss assessment uncertainties, and so, if we look at this first bullet of review, summarize, and discuss the factors of this assessment that affect the reliability of stock status and fishing level recommendations, you know, our first couple of thoughts revolved around steepness and natural mortality, but this is really common.

These issues are common in many assessments, that the parameterization around steepness and natural mortality -- In this case, they were fixed from a previous assessment, SEDAR 28. For steepness, there was no signal from the data to inform it, and natural mortality was fixed, and M

was found to have a significant impact on stock status, it being lower or higher, and they ran some likelihood profiles, and that showed that the data wanted M to be much higher, and so we just pointed that out.

We noted that there was a lack of adequate representation of length and age samples from each fishery, and that was spoken to by Erik earlier in his presentation. We mentioned the uncertainty of the shrimp bycatch estimates was very high, and, within the stock assessment report, it mentions the observer coverage is extremely sparse, and the effort data are questionable. This is a big one, obviously mentioned by Erik earlier, and there's a lack of a pelagic fishery-independent index of adult abundance. We have no way of tracking adult abundance, from a fishery-independent standpoint.

The commercial handline index, the fits were poor, and they did a sensitivity run to take that out, which was largely inconsequential, but we thought we would mention it anyway, and this model ignored the initial year of the MRIP CPUE index, and this -- We also brought on a few research recommendations, and, as mentioned before, in Group 1, these are based on public comments that the stock may be moving northward, from these commercial fishermen, their view of what's happening on the water, and so research on stock distribution is warranted. Recreational discards, there obviously needs to be a better characterization of age and size composition and mortality of discarded fish, and so that wraps up that bullet point.

This bullet point revolves around the impacts of COVID, and, by this point, we're sort of running out of time, but, obviously, the interruptions in MRIP sampling impacted the 2020 estimates, and they somewhat were addressed, due to the imputations that were used, but this lack, or limited, value of 2020 data will be -- It's just hard to determine the effects of this until additional years of data are collected, and so including or excluding 2020 data will be difficult to determine now, and we must evaluate the congruencies, or incongruencies, of these data to previous or future years ahead.

The next bullet is list the risks and describe the potential consequences of assessment uncertainties with regard to status, fishing level recommendations, and future yield predictions. When stock biomass is decreasing, and fishing mortality is increasing in the terminal year, this increased uncertainty can lead to an overfished stock status, potentially. Because this is the terminal year, it's that much more important, obviously. The next bullet is are methods of addressing uncertainty consistent with SSC expectations and the available information? Yes, and I would say we say the methods of addressing uncertainty are consistent, and, moving on -- Okay, and so now we're on 3.

We were also in charge of 4, and, again, we were running out of time here. We just mentioned, briefly, that the -- Again, the potential movement of the stock northward, in terms of OFL and ACL monitoring, and that wraps up our notes.

DR. BUCKEL: Thank you, Dustin. Do any other members of Group 2 have any additions or corrections to what Dustin just presented? Okay. Seeing no hands raised from Group 2, I will open it up to the whole SSC, and is there any comments on what Dustin just presented? All right. No hands, and so we'll move on to Group 3, if you could report-out. Eric Johnson, I think you were the rapporteur?

DR. NESSLAGE:  Actually, it ended up being me, Jeff, due to technical difficulties.

DR. BUCKEL:  Genny, thank you for stepping in.

DR. NESSLAGE:  Sure.  Our group struggled a bit with understanding the questions, and we talked a lot about probably stuff that other people were talking about as well, and so I'm not sure we're as eloquent as the other groups, but I will very briefly go through.  We did go through the control rule, assuming that the assessment is accepted.

Based on our control rule, there is MSY estimates, and so, therefore, Tier 1 would be a zero percent adjustment.  The BAM projects uncertainties forward into the projections, or carries uncertainty forward in the projections, and so that would be a Tier 2 adjustment of 2.5, and stock status is not overfished or overfishing, and so that would be zero.  The percent adjustment, the PSA, we didn't see any reason that the productivity and susceptibility of medium level would be any different this time than last time, and so that would be a Tier 2, and so that would be a 5 percent adjustment, for a total adjustment, if I did the math right, and everybody check me, of 7.5, which would give us a P* of 42.5.  Again, please, everyone check me, and I was doing that fast.

That being the case, then we were also asked if do the projections and interim assumptions adequately capture uncertainty, and I think you guys did a better job in the previous group, and so I won't beat a dead horse here.  Some of these apply to projections and some don't, and I was just trying to capture what everyone was talking about, but there is certainly uncertainty in steepness, and some of the issues regarding MRIP and projecting the terminal year conditions forward were a concern.

I am just going to skip down to the projected F rates question, and were the F rates in 2021 to 2022 reflective of the fishery, and this whole section was a little leading, in the way it was worded, and so we got a little grumpy, but we did indicate that -- Basically, there was a lot of discussion about this not being an operational assessment, and so, in the future, we hoped that more attention would be paid to those MRIP estimates, given that they did indicate a large sudden change in magnitude of the recreational landings.

A major source of uncertainty, obviously, in setting catch levels then.  It would indicate a large increase in shore-based effort, which may or may not be realistic, and we talked about whether, with COVID, there might be more shore-based anglers, and so maybe it is realistic, but, in 2022, that might drop, and we had a big discussion about that, but, basically, the suggestion was that more investigation was needed, and you can look at that big change in 2021 to 2022 and Slide 102 forward.

The next question about how the projected catch levels compare, it's higher than -- I'm not sure what folks were going for there, and then comment on the implications of the expected spawning stock biomass, and that's another kind of obvious question, and so we weren't sure what folks were going for, but, basically, if the data are overestimating F in the last few years, the SSB decline that's in those projections would be overestimated, but, if there truly had, then that response is to be expected, and so the question is whether those are good estimates or not of F in those two years, but we didn't have any issues applying the control rule, and that's it, in a nutshell.

DR. BUCKEL:  Thanks, Genny.

DR. CURTIS: Genny, just as a clarification, when you guys went through the ABC Control Rule dimension tiers, this has changed since the SEDAR 28, correct?

DR. NESSLAGE: Yes, and so our interpretation of Tier 1 -- They were estimating MSY-based -- Like FMSY in this, even though there were concerns about that estimation, correct? Someone correct us if we're wrong. Therefore, the Tier 1 should be zero, and maybe we've changed our interpretation over time, and that's possible.

DR. BUCKEL: Does anyone want to comment?

DR. REICHERT: Can I comment on that?

DR. BUCKEL: Sure, Marcel.

DR. REICHERT: We discussed that a little bit in our group, and correct me if I'm wrong, but, since the steepness was fixed, doesn't that normally we go to Tier 2, because you've got a proxy?

DR. NESSLAGE: I thought it was estimated. I thought I found that slide. Erik, help us out.

DR. WILLIAMS: No, it was ultimately fixed.

DR. NESSLAGE: Okay. Then it would be -- So, the way we've been interpreting it lately, it would be 2 then. My apologies, and so it's back to what you had.

DR. REICHERT: Thank you, and, for uncertainty characterization, I think that's what our group struggled with a little bit, and I think -- You know, I'm not sure how much we are constrained with the language in the ABC Control Rule, although Chip mentioned earlier that, if we want to deviate from the ABC Control Rule, or from the language in that, that we can do that, but we need to justify that, because the definitions of the various tiers here may not adequately describe the uncertainty that we discussed as a group, and so I would like to hear from others about that, in terms of whether it's high, or perhaps medium, and that goes back to some of the conversations we had earlier. Thank you.

DR. BUCKEL: Marcel, if you don't mind, if we can come back to that, and so the comment that's at the top of this table, the pending the SSC decision to accept the assessment for management, and so I think let's come to consensus on if we're going to accept the assessment for management, and then, if we do, then we can revisit that Tier 2, but I don't think there's -- Go ahead.

DR. REICHERT: Absolutely. No problem.

DR. BUCKEL: All right. Thank you. All right. It's twenty after 5:00, and I think the end time was 5:00, but hopefully folks can bear with us, and we'll continue on with the discussion, and that's the consensus on if the SSC wants to accept the assessment for management or not, and that's -- Group 1 had come to the conclusion, based on the list of things that are at the bottom here, and I think it's an in-combination thing that led them, along with the constraints of the operational assessment, to deem it not consistent with BSIA, and so let's have more discussion on that from the full SSC membership. Please raise your hands. Go ahead, Marcel.

## CONSENSUS STATEMENT AND RECOMMENDATIONS

DR. REICHERT:  Well, I am just going to throw this out here.  Given the terms of reference, I think the assessment represents the best scientific information available.  There may be other information out there that was not available, but I think it would be good to mention the terms of reference, just to start the conversation, or the discussion.

DR. BUCKEL:  Thanks, Marcel, and thank you, Judd, for getting Marcel's point on our document. Other members?  Genny.

DR. NESSLAGE:  I guess I'm a little worried now, based on Erik's response earlier.  If we are mischaracterizing, or misunderstanding, what's going on in this assessment, then we shouldn't be determining that, and so, if there are specific things that we are just not getting, which is very possible, because it's been a long day, I would like -- Personally, I would like to hear more about what we're getting wrong, because it's very possible, before I make a decision.

DR. BUCKEL:  Thank you, Genny.  I had written a note down, and I buried it on my desk, to come back to Erik about those concerns, and so thank you for that.  Erik, if you -- I know there were some statements that are on the page showing now that caused you heartburn, and so, if you could comment on that, that would be helpful to the SSC.

DR. WILLIAMS:  Great.  Thank you for the opportunity, and I appreciate that, and, you know, a lot of the conversation that you guys were just having was spot-on, and I really think you guys did a good job with Groups 2 and 3, and I think it's just this Group 1 that I think the language -- We need to be careful with what's being said here, and particularly because, if you are headed down the road of declaring that this is not BSIA, the justification, or the reasoning, for that needs to be sort of crystal clear, because, obviously, a lot of people are going to want to know, well, why did this fail, and what can we do to fix it, and all of that sort of stuff.

For example, the very first bullet point that I'm concerned about, or one that I am concerned about, is the operational assessment does not reflect more recent patterns that we are seeing.  What patterns, and who is we, and what are you seeing?  I'm sorry, but stakeholders and what they're seeing -- That's not scientifically-validated information, and it should not ever be a basis for determining BSIA, and so be careful there with that language.

You know, some of the other ones, and, well, I think Amy said it best too, about a lot of these are standard issues we have with any assessment, and what you need to do is clarify how are some of these issues more extreme, perhaps, or, you know, don't pass the bar, so to speak, and I'm not seeing that, and so I just want you guys to be very careful about -- You know, the question you should ask yourself is what is the evidence for this bullet point.

I thought it was very good, in the Group 2, the way they summarized some of the uncertainties, and they actually even referred to pages in the document and referred to other things, and I just think that you need to do something similar here, and make it very clear what's missing, what's not missing, what we do see in the data, what we don't see in the data, and not go beyond that, and

so I hope that helps. I could go through more of these, but I'm hoping just those general comments will force a little reflection, on the SSC's part, to make sure that their statements are supported by something.

DR. BUCKEL: Thanks, Erik. That's very helpful. I definitely understand where you're coming from on these, that the wording can be improved and made more accurate, and so thanks for that, and thanks to Group 2 and 3 for providing some more appropriate text there that we can borrow from for this first review assessment agenda item. Fred Scharf.

DR. SCHARF: Just to echo on that, I think that many -- We talked about this a little bit on Tuesday, in the pre-meeting, that some of the items under Group 2, in terms of identifying the uncertainties, were going to be redundant with things that we were talking about in Group 1, because they were, broadly, the same issues, and so I think we can use the language that Group 2 provided to tighten up what the concerns are in Group 1, but I did want to say that I would concur with Marcel, in that, given the terms of reference, that this operational assessment represents the best scientific information available, and I just want to, you know, reiterate what's in the TORs.

The operational assessment, you know, it wasn't -- It was constrained, certainly, relative to a research track, but there were lots of updates that were incorporated in the TORs, in terms of improvements in the BAM modeling, improved updates to growth and reproductive models, because there was a lot more ageing data added, particularly for the younger fish. If available, to include more steepness data for similar pelagic species, and there clearly isn't, unless you're going to jump to some of the larger tunas, that have very different other aspects of their life histories that are very, very different, and so I would be hesitant to try to use steepness information from those.

There really wasn't information from other species or additional data that would give us more contrast in stock biomass to inform a new stock-recruit relationship, and I think the assessment group did evaluate uncertainty with respect to the recreational landings, particularly the impact of the recent changes, the high landings data from the MRIP data, and so I think, within this operational assessment, they did a lot of things based on what was available, and so I think, given what kind of data is available for this species, because of the challenges for many of the coastal pelagics, that this operational assessment represents BSIA, and so I would concur with Marcel.

DR. BUCKEL: Thank you, Fred. Genny, do you want to -- We can come back to you, now that you've heard from Erik, seeing no other hands raised.

DR. NESSLAGE: Sure, and I guess I hear Fred and Marcel's argument, and I guess I don't disagree, in theory. I'm a little concerned with setting an ABC though, and there was a lot of big changes in those last two years, since I was on Group 3, that now give me a little bit of pause, now that I have looked at it a little bit more closely and thought about it, and I'm wondering if that intermediate option that Erik talked about, where perhaps a little bit more work could be done, and it would -- We would accept the assessment, but perhaps a little bit more work on projections could be done.

I'm not -- I don't know. It's late, and so I'm fading, but I'm wondering if there is anything that could be done that would have been done, had it not been an operational, to kind of dig a little deeper into the big spike in effort in those last couple of years, whether it's real or not. If it is, that's too bad, and then those are what the projections are, and we'll set the ABC based on that,

but, if it's not, or if there are major concerns, then maybe we need to think about how we treat those last two years, unless I am misunderstanding the situation, which I very well could be.

DR. BUCKEL: Thanks for your input, Genny, on that. Kai has his hand raised.

DR. LORENZEN: Yes, and I broadly with Genny. I think my big struggle here is, to my mind, this assessment has been too constrained by the TOR of the operational assessment to do -- To get to the level of digging into those questions that we all had, and, too often, I think we hit the barrier of saying, well, but we can't really go further, because this is an operational, and, if the basis of the operational is ten years old, and we've seen big changes in the fishery, and we've seen certainly changes in the data streams that are going into this, and we have this issue of those really big apparent changes in a very uncertain dataset from the shore-based MRIP mode.

I don't disagree that, yes, those were the TORs, but, at the same time, I feel they were too constraining, in the context of this assessment, and I think -- You know, I can see us going sort of part of the way, but I have real heartburn about basing catch advice on the projections that we're getting out of this assessment. Thanks.

DR. BUCKEL: Thank you, Kai. Erik Williams has his hand raised. Go ahead, Erik.

DR. WILLIAMS: I will be quick, and, actually, Kai just said it very well, and I thought Fred Serchuk had summed it up very well. I can't disagree that the biggest issue with this is the operational constraints, and, if for no other reason, this ends up not being used for management, and it's because of that one reason, I think that's a valid concern, because the reality is that, with a ten-year-old assessment, we did not open the door to a lot of things that we normally would, like even reinvestigating the index calculations and some other things like that, and who knows what we --

Here's another hypothetical that I actually posed when we were doing this assessment, is, if we had the SEDAR 28 assessment in front of a CIE panel today, I don't think it would pass review by a CIE, because the bar has been raised for fisheries science. There's no doubt about it, for stock assessments, and I'm not sure that this one passes that bar anymore these days.

DR. BUCKEL: Thanks, Erik. Good points. Yan Li.

DR. LI: Thank you, Jeff. I would like echo Genny and Kai, and Erik just mentioned -- For me, for myself, it's hard for me to make a decision, because this BSIA itself has two components here. One part is methodology, and one part is the data quality, how confident we are about what we collect and put into the model. The thing is that I am comfortable with the methodology. That is -- The methodology part is the BSIA, but the data quality part -- Also, that part is not BSIA and, plus, again, the operational assessment constrained a lot of things, and it's ten years old.

What we're assuming here, those assumptions for this assessment, is ten years old, and it needs to be updated. I just feel -- To me, I cannot make a decision. I don't know, and so I am -- Here is my little two-cents in the wording here, and I don't know if we can say that we cannot decide, and it's difficult to make the decision, given the reasons we just discussed, given the constraints for being an operational assessment, and can we recommend -- I don't know, and can we recommend

-- Not make a decision this time, and can we recommend a research track assessment? I don't know, and that's just my two-cents. Thank you.

DR. BUCKEL: Good points, and so it's good to start thinking about what is the next step, and so I guess there is -- It seems like there is concern, amongst several, about setting catch level recommendations based on the assessment. What about stock status? Could we -- How do folks feel about the -- Is the assessment adequate to assess where we are with stock status currently, and could we state that we're not comfortable with the catch level recommendations and then provide guidance, moving forward, and I think Genny had mentioned that Erik's group could look into -- Dig deeper for the projections, or there is the research track, and so I guess there's a couple of different things there, and we'll take one at a time. The first is this question about stock status, and how do folks feel about the stock status from this assessment? Yan, go ahead.

DR. LI: Thank you, Jeff, and so, again, the terminal year of 2020, and we raised a concern about 2020 data, MRIP data, and so, to me, there is great uncertainty about the stock status for the terminal year. If we use three years average, yes, overfishing is not occurring, but what if you used only the terminal year? What if the terminal year is something? It's not that certain, and so I just feel great uncertainty about stock status.

DR. BUCKEL: All right. Thank you. Fred Serchuk.

DR. SERCHUK: I agree exactly with what's just been said. I think that the stock status, apart from 2020, where the stock was not overfished, and overfishing wasn't occurring, and we pointed out some problems with the most recent data, and the uncertainties in the most recent data, and we're going to have to think about how that translates into any projection we do, and there is no simple answer to this, but, apart from the last data point, which I think has the most uncertainty, you know, I think we would all agree that the stock is not overfished and overfishing is going on, but, because of events that happened in 2020, we're really uncertain about what the current status is, and that really will translate into we're not going to have very much confidence in our projections.

Maybe this is a unique situation, but it's what we face right now, you know, and, apart from saying, well, you know, we're going to -- We'll look at this again in a year or two, and so we're going to put a placeholder in for a forecast, I don't know what more we can do to ensure that whatever forecast we do has great certainty to it. Thank you.

DR. BUCKEL: Thanks, Fred. Just, while you're still on, that's a recommendation for not trying to work with the current model to dig deeper, to try to come up with maybe more informed projections, and your recommendation is to go with the more research track and to dig deeper on multiple items that have been brought up today?

DR. SERCHUK: Well, or convene a small group and not go the full-bore on a research track, because that simply means that you're going to -- Everything is open to being looked at, and I think they've invested a lot of work into it already, and, of course, it was the constraints within an operational model, and I think a research track will have to go out for several more years, but I think we have an immediate situation about what do we do about stock status, and I've given you my idea on that, and, moreover, what do we do about the projections? Thank you.

DR. BUCKEL:  Thanks.  Marcel.

DR. REICHERT:  I fully agree with that, and I also feel that we probably need to be quite specific in what we want the assessment team to do, addressing some of Erik's concerns earlier, and so I am not sure if we can get to that today, but I feel strongly that we need to be specific, other than a research assessment, which is not going to provide any information for several years, even if we start one right now, and so I expect that the council, and maybe Carolyn can address that, and I don't mean to put you on the spot, Carolyn, but I expect the council would like to hear from us, in terms of what we recommend, in terms of management.  Thank you.

DR. BUCKEL:  Thanks, Marcel.  Carolyn, can we put you on the spot?

DR. BELCHER:  The short answer is yes, as far as -- I mean, those are the questions, and I'm just thinking back over time, when we've had situations where there has been assessments that haven't passed muster, and I've only -- I've been involved with two in my time with the SSC, which was king mackerel, back in the early years of things, and then the second was the bonnethead assessment.

I think it's down to you have to talk about what you know about the assessment, what your comfort level is, and I think, for me, some of the hesitancy, with hearing BSIA, and then, if we say that it's deemed that it's best science, but it's not good enough for management, then we've got to talk about why it's not good enough for management, and I think you have to figure out what the best way is to couch it.  I mean, I think that's the ultimate goal that the council wants to hear from you all, is can we use it for management or not, and what are the perils that we take if we proceed with it as-is, and what do we need to think about.

I guess that's -- Procedurally, where I'm new in this role, I don't know, procedurally, what it means, and can it go back to Erik's shop, if we're not happy with it, and that's a question to Chip and Judd and John, if John is out there, and I'm not really sure.  All I can tell you is that I've been in two other situations where assessments have been rejected, and they have not been used.

DR. BUCKEL:  Thanks, Carolyn.  Any council staff or, if John is online -- Any guidance on like if there is -- Fred Serchuk mentioned convening a smaller group to try to put a plan together for some of the concerns that have been brought up and to provide information for how the current assessment could be moved forward, where folks would then be comfortable, and it seems like the data quality is a big one, and not the methodology, but the data quality and where that could be -- Those datasets could be -- A deeper-dive could be made, and then, potentially, then use the assessment for management, and I see that Chip has got his hand raised, and so go ahead, Chip.

DR. COLLIER:  Unfortunately, John is out of power right now, and he could speak to this much more eloquently than I could, but you could consider this -- You know, this is following, or is consistent, with BSIA, and for stock status, and then, you know, recognize that there might be other techniques that might be more appropriate for projections.  There is several different ways that the SSC could go with this, and it's entirely up to you guys on how you want to do it.

You know, that method of projections is based on the stock-recruit curve, and you could ask for additional runs of the projections, if you're not comfortable with them, the way that they are right now, and you could consider setting ABCs and OFL in a different manner.  However you guys

want to do it, but you just have to define exactly how you want to do it and why you want to do it that way.

I am thinking about the procedural guidance that was given for stock assessments a couple of years ago, and I think it was just done through a desk review with you guys, but there was the option to -- If an assessment is rejected, you could go back to the previous stock assessment and use those values going forward, and there is also coming up with maybe a data-limited approach, in order to develop catch level recommendations, and so those are all considerations for the SSC.

DR. BUCKEL:  Thank you, Chip.  Any SSC members have comments based on Chip's?  Kai.

DR. LORENZEN:  I have more of a question, and I'm a little confused now as to what the options are, because, you know, we've talked about how this assessment was really constrained by the operational terms of reference, and so a lot of the explorations that even the analysts felt were needed were sort of not done, and now we're saying, well, why don't you go ahead and do some of those, and then we'll see if we can get something we're more comfortable with, and I'm sort of wondering -- Are we sort of sliding onto a research track and not calling it that, or what are the sort of procedural options that we have, and at what stage do we call it a research track assessment?

DR. BUCKEL:  Great question, Kai.  Does anybody out there want to -- Go ahead, Chip.

DR. COLLIER:  I mean, I think that's a really good point that Kai brings up, is we talked about a research track assessment, or the SEDAR Steering Committee has talked about the research track assessment, quite a bit, and they have developed some SOPPs for those, but, unfortunately, we don't have SOPPs really developed for operational assessments and the techniques that could be used if there are these kinds of issues.  I see that Julie is online, but I don't want to put her on the spot, because I don't feel like the SEDAR Steering Committee has really had the discussions of what to do next with an assessment that is not fully accepted, and I don't know if it's built-into the system on how to address it.  I do see that Julie has her hand raised now.

DR. NEER:  How to handle an assessment that is not entirely accepted by an SSC is an issue, whether it's an operational or a research track, and it has happened many times.  It happened earlier this week with the Caribbean SSC reviewing an assessment that was brought to them, and they raised quite a bit of data concerns, and the Center is working on finding a way to -- The way they're moving forward, in that case, is the Center took the comments that were made from the SSC, and they are going to try and come up with a plan to address some of them.

That was an operational assessment.  Are they going to be able to redo the entire model and change everything, and now it becomes a research track?  No, but there might be a way to get some of those issues resolved that can help the SSC feel comfortable moving forward in making recommendations, and so this just happened, earlier this week, and Erik is on the SSC for the Caribbean, and so he was part of those discussions, but, again, by the end, the SSC had to make some specific concerns and comments raised to the Center, saying these are the things we would like you to investigate further and report back to us, and that is my understanding, is what they're trying to figure out now is what the Center can do in a timely fashion to make that happen.

You don't just get to throw out the whole thing and keep working on it over the next year, and it comes back multiple times, but you do have some flexibility to, if you can identify, as Erik was

asking for, specific things that you would like him to look at -- As Chip had said, maybe there's a different projection methodology, and it sounds like you guys are comfortable with, in general, the methods that were used, but not some of the data inputs, and so maybe you need to have a request to the Center to investigate alternative ways to determine steepness, or something like that.

That is -- What you want is up to you. I think there are paths forward to allow you to do something with all of this work. The Gulf has done similar things in the past, and Kai could speak to those, where they've said, yes, we're okay with the assessment overall, but we don't think it's useful for management, and, therefore, they went down a different path to produce their management advice, and so there are options available to you. Unfortunately, it's quite late, and it has been a long day, and, you know, we may not be able to think of any right now, but I don't think it's a thumbs-up or thumbs-down and that's the only decision as a way forward. I hope that helps.

DR. BUCKEL: Yes, and that's very helpful, Julie, and so I agree that it's late, and I want to wrap things up by 6:00, or try to anyway, and so we're not going to be able to fit that list of what we need together, and I think it was Fred Serchuk, maybe, that mentioned getting a group together, and maybe that's the next step, is getting a subset of the SSC together to put that list of things together, and this is one option, right, and so, if folks feel like there's enough there that we can move forward with where we could provide recommendations to Erik's group, to improve on the assessment that we have here, to where we would be comfortable setting stock status, or determining stock status, and fishing level recommendations in the future. If folks are in agreement with that, then we would get a list of folks together that would be willing to serve on that group.

If the consensus is that we -- If we're just not there, but it seems like there was a larger group that felt that, with improvements to the current model, and really the data quality was mentioned, and these constraints of the TORs, and, if those could be -- If some of those items could be addressed, then we could move forward. Chris.

DR. DUMAS: Can we say it's the best scientific assessment available, given the data and information constraints, or given the available information and data? The best scientific assessment, given the available information and data? Because I think everybody agrees the methodology that was used was great, and the analysts were limited by the available data.

DR. BUCKEL: And constraints of the --

DR. DUMAS: And constraints of the TORs. That's right. Thank you.

DR. BUCKEL: Thank you, Chris. All right. I would like to hear from others on this. I put the strawman up of a next step, right, and we're not going to get this list of recommendations together now, but there would be a subset of SSC members that could work on that. Fred, correct me if I'm wrong, but I think you brought that up, and would you be willing to be a part of that group, Fred Serchuk?

DR. SERCHUK: I don't actually think I'm the best person for that, because I'm not all that familiar with either the fishery, and I really haven't studied the assessment enough, but, again, my feeling is that this is -- This represents BSIA, but there are problems with uncertainties, and there are problems with data collection that make the most recent years of results more uncertain than

the earlier years, and I think the way forward is, one, to either use projections or use the results, prior to the most recent year or two, and take those forward.

I don't think this is a big thing, but I'm not in a position to do it, but I'm just thinking that I don't want to throw out the baby with the bathwater. I realize the constraints of an operational assessment, but I also realize that we're probably going to have to come back to this in a few years, and so the -- I am mostly concerned about the projections, because I think that the stock status is clear, in my mind, that the stock is not overfished, and overfishing isn't going on, but I don't know that that's true in the most recent years, because of problems with the data, and problems with COVID, regarding data, and I think we need a bridge.

That's all, is we need a bridge, and we have to think about when the next research track assessment will be done, and that's the way I see the way forward. I think a technical group could -- A small group of people that are familiar with the fishery and familiar with the analyses could probably make that bridge very easily, but, again, I am not familiar with the intricacies of the assessment, and that's why I don't think I would be a good person on that small group. Thank you.

DR. BUCKEL: Thanks, Fred, and thanks for providing more details on the way forward, and that's much appreciated, and so I know there were several SSC members that were involved with SEDAR 78, and are there -- Any of those folks that are more familiar with this assessment, would they be willing to be part of this technical group? Go ahead, Dustin.

MR. ADDIS: I was on the assessment panel for SEDAR 78, and so I can potentially be on this subset group.

DR. BUCKEL: Thanks, Dustin. Marcel.

DR. REICHERT: Same here. I wasn't part of the assessment, but I am happy to participate. Again, I think it's very important that we are going to be very specific, in terms of what we want to do, or what we want the assessment team to do. Thanks.

DR. BUCKEL: Thank you, Marcel. Others that are interested or that were part of that SEDAR 78 team, the SSC members that were part of the SEDAR 78 process? Okay. Well, we'll do some arm-twisting after this meeting, because I know we have a few more agenda items, but I think we've got -- We've captured a consensus from the SSC on their feelings on SEDAR 78, and, if I'm misspeaking for anyone, please chime-in now.

DR. LORENZEN: I am not really comfortable with the idea of calling this BSIA at this stage, but I don't know how to play that. If everyone else feels that's okay, then --

DR. BUCKEL: Yes, and I understand your -- I think the -- Is there an edit that we could make to that first bullet that would make you more comfortable?

DR. LORENZEN: I don't know, and I would just not make that statement at this stage. I would just say so these are -- There are things that we need to look into, and we'll have a group do that, and I wouldn't make this statement about it being BSIA at this stage, and that would be my suggestion.

DR. BUCKEL:  All right.  Thanks, Kai, and I think that others had concern with that too, and so I think what we were trying to capture there was that the SSC felt that the assessment methodology was adequate, and the concerns were with the available data and the constraints of the TORs, and so we could --

DR. LORENZEN: I mean, usually -- I guess the point is that, once we declare something BSIA, we're sort of saying, okay, we're ready to move on, and we don't have a lot of big questions about it, and I think, right now, it's sort of a little conflicting here that we're saying, yes, it's sort of BSIA, but we have all these big questions about it, and so I would just sort of avoid that statement at this stage, and I recognize that the main reason why we have so many questions is because of the constraints that were in the TOR, but I think, to my thinking, the question of whether this is, or can be, BSIA is something that we should answer after we've had time to, you know, come up with that list of the critical things that we feel need to be addressed.

DR. BUCKEL:  All right.  Thanks, Kai.  Are others okay with striking that first bullet, and then we'll just go right into the concerns?  Let's put it this way.  Is anyone not happy with striking that?  Okay.  Not hearing anyone, Judd, I think --

DR. REICHERT:  Jeff, I am thinking about that, and I don't want to belabor this point, but what is our -- Are we postponing our verdict on this assessment, because I can imagine the question will become so are you either -- Are you rejecting it, or are you saying, well, this needs to be done, before we can accept it, or are we leaving that first bullet point in play?  Do you know what I mean?  Are we saying, okay, we're punting this, the decision about this assessment, until a later date, until this subgroup can come up with some recommendations?  I think we need to be very specific about what our intention is here for today.

DR. BUCKEL:  There are several folks with their hands raised.  If they're to this point, please go ahead and -- Yan, was it to this point?

DR. LI:  Yes, Jeff.

DR. BUCKEL:  Okay.  Go ahead.

DR. LI:  I have the same feeling as Kai, and I like Marcel's second option, and I like one of those options saying that we cannot make a decision now, until later, when the subgroup comes up with the suggestions and after we have requested those new results.

DR. BUCKEL: Okay.  Thank you.  Let's hear from a few others, to see if that's consensus.  Anne.

MS. LANGE:  My suggestion would be to keep the sentence there and just change it to something like the SSC deems this assessment model, or methodology, to be consistent with BSIA.  However, given the available concerns with -- Or given the concerns with the available data and constraints, additional work should be completed before projections are made, or before it's used for projections.  I mean, I don't want it to be -- For it to go out there with the thought that the assessment analysts didn't do the best science.  I mean, it wasn't their fault that the data wasn't there, and the methodology we all seem to approve, and it's -- You know, we just aren't -- I guess Yan said pretty much the same thing, and we're just not at the point of wanting to use it, quite yet,

for projections, but the model itself is there, but it's just what can we do to clean up, or improve, some of the inputs.

DR. BUCKEL:  Maybe the SSC deems the model appropriate to move forward with.  However, there are issues with -- But I think the concern was this BSIA, even if it's specific just to the -- If it's used, then people might assume that, well, if the methodology is BSIA, then we should be able to use it, and so I think that's a valid point.  We can still -- We can state that, you know, that the assessment methodology was deemed appropriate by the SSC, but not use BSIA.  Would that be okay, Anne?

MS. LANGE:  Yes, and I think -- But, again, I just want to make sure that it's not the model or the methodology that we're concerned with, and I think we should acknowledge that.

DR. BUCKEL:  I agree.  Scott.

DR. CROSSON:  Anne just put it far better than I could.  I agree with her.  That's all.

DR. BUCKEL:  Great.  Thank you.  Fred Serchuk.

DR. SERCHUK:  Thank you.  Do we have to make a decision on that today?  Given the fact that we're going to have a -- You know, we can make the statement that, given the constraints of limitations imposed by an operational assessment, this represents BSIA, and, to me, that's a message to the managers that is basically saying, well, you were a little bit too rash in calling for an operational assessment for something that was ten years old, because, by the very nature of science changing, and methods changing, and sampling regimes changing, being held to basically an analytical approach that's ten years old was bound to have problems.

If that's the message to the managers, that's fine, and they might say, okay, we're not going to let any assessment go more than five years before it gets another benchmark, or another research track assessment, because we want our models to represent those advances and take cognizance of any sampling changes and so on and so forth.

My concern is that I think we don't have to say it's BSIA now, do we, and we can have this small group go forward and do their best and then say, given the constraints of the benchmark, or the constraints of the operational assessment, and the additional work that's been done, in terms of looking at some recent uncertainties and recent approaches to projections, we now recognize that, all in all, it represents BSIA, and do we have to make that determination today?  I hope not.  Thank you.

DR. BUCKEL:  No, I don't think we can make that determination today, and I don't think we have to.  Okay, and so thanks for that extra input, everyone, on our consensus statement, and so it is 6:10, and we still have a few agenda items, and so this will be our consensus statement, and you will have another chance to look at this when I send the final report out.  Judd, if you want to scroll to our next agenda item.  I can't remember what's left.  There was no Other Business, correct, Judd?

DR. CURTIS:  That's correct, Jeff.  We have no Other Business, and we just went through the exercise of the consensus statements and recommendations.  We can open it up for public comment one last time.

DR. BUCKEL:  Excellent.  Thanks, Judd, and so, if there's any members of the public that would like to -- This is your final opportunity to comment on today's meeting, but if you -- Go ahead, Dewey.

## PUBLIC COMMENT

MR. HEMILRIGHT:  I'm sitting here, and I've been listening and how things -- The wording of the best available scientific information, and the terms of reference, and getting wrapped around the axle, and it's like there's no doubt that the information -- The best scientific information is lacking, and folks are having trouble, because they don't -- It seems like they're worried about the wording too much and not the actual outcome of what the stock assessment is, and, for the terms of reference, it seems like -- Why in the world, if we're having this discussion, did we have an operational assessment, given all these limitations?

It's like the assessment folks done their job, but the information that they were given is incomplete, compared to the fisheries that's been going on, and are happening now, and it's not an accurate portrayal of what the data would show, had the data been gathered and been used, and so it's frustrating for a fisherman to sit here and listen, and I'm grateful for the ones that have spoke up, and spoke up about it, because simply stamping that the best available science --

Well, there might be part of that true, but, then again, the other part is that there's all the science that wasn't used and gathered, and who loses out is the fishermen on this, that never get talked about, and so I appreciate the conversation of folks going back and forth and really digging down deep into this, because we've got problems, when we've got these terms of reference that only ask these few questions, and there needs to be more asked, because this shouldn't have been an operational assessment, and I think I've said enough.  It's just frustrating, and I'm appreciative of the conversation going back and forth about how this is not the best available science, and, well, it could be, but it ain't the best available stock assessment that should have been produced.  Thank you.

DR. BUCKEL:  Thank you, Dewey.  I see Ben Hartig next.

MR. HARTIG:  Thanks.  I just echo Dewey, and he made his comments very well, and I agree with his comments wholeheartedly.  I really have a problem, during this SSC discussion, when the director of the lab chimes in and tries to salvage an assessment, from the comments that were previously made, that he sees going in a direction.  I think that reflects very poorly on the Science Center, and I think it's an extreme conflict of interest, because the director of the lab is making those comments, even though he gave the presentation, and he really wasn't asked to give those comments, and he said he had comments to make, and you allowed him to do that.

I don't think that I would have allowed it, based on what I have seen in other CIE meetings, and I don't see that review process, and they're a little bit more tighter in range than I've seen here, but that is what it was, but, in the final reality of everything that happened, I am comfortable with your

BSIA recommendations of what the assessment scientists did, and I believe that you can't go forward with the projections for management, and I think Erik was comfortable with that as well. I will be comfortable with that outcome.

What you do in the future -- I mean, I mentioned this fishery has been autopilot on the level of harvest we have now, both commercial and recreational, and I would look to use the same numbers that we had coming out of the last assessment to go into the future, until we get a better assessment.

The one other thing I will say is Erik knows these numbers can't be reconciled. There is nothing you can do to change the poor age samples collected, and there's nothing you can do that you can go back into the past and change, and so that's going to be really problematic in the future. I think a bigger discussion, for Spanish, is how we move forward in the future and to be able to get an assessment that makes sense.

The APAIS configurations need to be investigated further. We need more years of data, and, initially, the two years of high recreational catches are not impacting the fishery at all. They don't have any impact on the fishery, and so, basically, those high -- As I said before, probably, in my presentation, they don't mean a whole lot to what is actually going on in the biomass of the fishery, but I think I will leave it at that, and I thank you very much for allowing me this final comment, and I sincerely appreciate the discussions of all involved, and I think you can come to a decision that will help the fishermen, and fishery, while still holding the assessment scientists, you know, up to a degree of success, and so thank you.

DR. BUCKEL: Thank you, Ben. Okay. Chip, it doesn't look like any other hands from the public, and so, Judd, I think you mentioned that we dealt with Number 10.

## NEXT MEETINGS

DR. CURTIS: Yes, Jeff, and, I mean, I'm comfortable. I think we just spent a lot of hours going through the consensus statements, and we've got that kind of to a spot where I can clean it up and put it together and send it out and move forward from there.

The only other thing that I just want to just mention is the next meetings. You can see them on the screen. As mentioned earlier, or in an email, we have determined that we're going to have set SSC meetings for both the in-person fall and in the spring, set now so that we can aid in scheduling, and that will -- So October meetings will take place the fourth week of October, and our spring meeting will be the third week of April each year, so you can plan around those dates, barring maybe a holiday or some other extenuating circumstances, and we'll look to those weeks, in each of those months, for the in-person SSC meetings in Charleston. The webinar meetings, like we've had today, will be to be determined through the Ex Com and staff, and just kind of stay tuned, as those come up, as needed, and so thank you.

DR. BUCKEL: Thanks, Judd, and, Anne, I see you have your hand raised.

MS. LANGE: Yes, and I was just wondering if Chip or Judd would be sending out documentation and things for that workgroup that we talked about a little while ago and whether or not it's joint with the Gulf SSC or not for the unassessed stocks.

DR. CURTIS:  Anne, I will dig into some of those older notes, and some of that did pre-date my time, but Chip and I will work together and get some notes from those previous meetings, before we kind of start really developing the goals and objectives and scope of work for the joint workgroup.

MS. LANGE:  Okay.  Thank you.

DR. BUCKEL:  Thanks, Anne.  Thanks, Judd.  Marcel.

DR. REICHERT:  Quick question.  Jeff, are you, or staff, going to be in touch relative to that Spanish mackerel working group, or group, or whatever we're calling it?  What's the next step?

DR. BUCKEL:  I will talk with Judd and Chip about the next steps there, and we're also going to have to -- If you and Dustin can maybe twist some arms to get -- It would be nice to have a couple more SSC members on that.

DR. REICHERT:  Okay.  Thanks.

DR. BUCKEL:  We need to fill out that workgroup, and then we'll get guidance on scheduling that meeting, the first meeting of that group, and one thing, just back to Number 10, the SSC report is due to the council on Friday, August 26, and so I will send out a report as soon as I can clean up the notes with Judd, and then I'll get that out for your edits, and then we'll need that back the week before that August 26, and so stay tuned, and please provide feedback on the final report draft.  I think, with that, if there are no other hands raised, we can adjourn the meeting, and apologies that we went so late, but thanks, everyone, for sticking this one out.  It was a lot to get through, and I appreciate everyone's time and thoughts.

(Whereupon, the meeting adjourned on August 4, 2022.)

- - -

Certified By _____  Date: _____

Transcribed By
Amanda Thomas
August 24, 2022

# Attendee Report:

## Joint SA and GOM Scientific & Statistical Committee Meeting (August 4, 2022)

Report Generated:

08/04/2022 06:50 PM EDT

| Webinar ID | Actual Start Date/Time | Duration |
|---|---|---|
| 654-588-531 | 08/04/2022 08:28 AM EDT | 9 hours 54 minutes |

## Attendee Details

| Attended | Last Name | First Name |
|---|---|---|
| Yes | Addis | Dustin |
| Yes | Allen | Mike |
| Yes | Allen | Shanae |
| Yes | BROUWER | MYRA |
| Yes | Barbieri | Luiz |
| Yes | Bianchi | Alan |
| Yes | Blanchet | Harry |
| Yes | Bubley | Walter |
| Yes | Buckel | Jeff |
| Yes | Byrd | Julia |
| Yes | Cao | Jie |
| Yes | Carmichael | John |
| Yes | Chagaris | David |
| Yes | Charles | Eban |
| Yes | Chaya | 01Cindy |
| Yes | Cheshire | Rob |
| Yes | Christiansen | Heather |
| Yes | Council | Gulf |
| Yes | Crabtree | Roy |
| Yes | Cross | Tiffanie |
| Yes | Crosson | Scott |
| Yes | DeVictor | Rick |
| Yes | Dumas | Christopher |
| Yes | Espittia | Jacob |
| Yes | Fitzpatrick | Eric |
| Yes | Flowers | Jared |
| Yes | Foss | Kristin |
| Yes | Franke | Emilie |
| Yes | Frazer | Tom |
| Yes | Froeschke | John |
| Yes | Gallaway | Benny |

| Yes | Glazier | Ed |
| --- | --- | --- |
| Yes | Gray | Alisha |
| Yes | Gregory | Doug |
| Yes | Griffith | David |
| Yes | HEMILRIGHT | DEWEY |
| Yes | Hadley | John |
| Yes | Hartig | Ben |
| Yes | Helies | Frank |
| Yes | Howington | Kathleen |
| Yes | Hudson | Joseph |
| Yes | Iberle | Allie |
| Yes | Iverson | Kim |
| Yes | JOHNSON | ERIC |
| Yes | KELLY | BILL |
| Yes | Karnauskas | Mandy |
| Yes | Kilborn | Joshua |
| Yes | Laks | Ira |
| Yes | Lange | Anne |
| Yes | Lazarre | Dominique |
| Yes | Levy | Mara |
| Yes | Lewis | Brian |
| Yes | Li | Yan |
| Yes | Lorenzen | Kai |
| Yes | MUNYANDORERO | JOSEPH |
| Yes | Mareska | John |
| Yes | Matos | Jessica |
| Yes | McGilly | Joshua |
| Yes | Mehta | Nikhil |
| Yes | Mendez-Ferrer | Natasha |
| Yes | Messer | Katherine |
| Yes | Mickle | Paul |
| Yes | Moncrief | Trevor |
| Yes | Moore | Tina |
| Yes | Muller | Robert |
| Yes | Murphey | Trish |
| Yes | Nance | Jim |
| Yes | Neer | Julie |
| Yes | Nesslage | Genny |
| Yes | Newman | Thomas |
| Yes | O'Donnell | Kelli |
| Yes | O'Hop | Joe |
| Yes | OFarrell | Halie |
| Yes | Oliver | Ashley |
| Yes | Palmer | William |
| Yes | Patterson | Will |
| Yes | Poland | Stephen |
| Yes | Powers | Sean |

| | | |
|---|---|---|
| Yes | Ramsay | Chloe |
| Yes | Reichert | Marcel |
| Yes | Renchen | Jeff |
| Yes | Rock | Jason |
| Yes | Roy | Bernie |
| Yes | Saul | Steven |
| Yes | Scharf | Fred |
| Yes | Schmidtke | Michael |
| Yes | Schueller | Amy |
| Yes | Scott-Denton | Liz |
| Yes | Scyphers | Steven |
| Yes | Sedberry | George |
| Yes | Serchuk | Fred |
| Yes | Seward | McLean |
| Yes | Simmons | Carrie |
| Yes | Smillie | Nick |
| Yes | Spurgin | Kali |
| Yes | Stemle | Adam |
| Yes | Stewart | Sara |
| Yes | Swanson | Chris |
| Yes | Sweeney Tookes | Jennifer |
| Yes | Thiel | Marvin |
| Yes | Tolan | Jim |
| Yes | Travis | Michael |
| Yes | Vecchio | Julie |
| Yes | Vincent | Matthew |
| Yes | Weisel | Jaime |
| Yes | Wiegand | 01Christina |
| Yes | Williams | Erik |
| Yes | Withers | Meg |
| Yes | Woodward | Richard |
| Yes | Zhang | Yuying |
| Yes | birren | mike |
| Yes | collier | chip |
| Yes | elcher | Carolyn |
| Yes | kittle | christine |
| Yes | rindone | ryan |
| Yes | thomas | suz |
| Yes | vara | mary |