GULF OF MEXICO FISHERY MANAGEMENT COUNCIL

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

GMFMC Office — Tampa, Florida

SEPTEMBER 21-23, 2022

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Luiz Barbieri.....
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PAGE 119: Motion that the SSC agrees that increased use of socioeconomic factors in allocation decisions may, at least in some cases, improve the overall economic and social values of fisheries relative to historically used landings-based allocation metrics. The SSC concludes that an assessment of alternative approaches to sector allocation or reallocation requires that the objectives (or goals) of future allocations to be defined by the council. The SSC recognizes that each of the approaches presented have potential tradeoffs and that defined goals would allow for evaluation of the impact of these tradeoffs to different stakeholder groups. As part of this evaluation process, we recommend the council asks the Southeast Fisheries Science Center to evaluate the data and analytical requirements of multicriteria versus simply historical-landings-based allocation approaches, as well as conduct a data triage to investigate whether data currently exist to follow any given approach for specific fisheries (e.g. yellowtail snapper, red grouper). The motion failed on page 140.

PAGE 185: Motion to accept SEDAR 68 GOM Scamp OA as consistent with best scientific information. Under the current FMSY proxy of F 30 percent SPR, the model-derived estimates indicate the stock is not overfished or experiencing overfishing. The motion carried on page 234.

PAGE 207: Motion that the SSC recommends that the council request an interim analysis for lane snapper be performed by SEFSC instead of the planned operational assessment. The motion carried on page 208.

PAGE 217: Motion that the SSC determines that the yields corresponding to the rebuilding schedules calculated using the council requested allocation scenario of 35 percent commercial 65 percent recreational, based on Tmin (eleven years at F equals zero), 75 percent of F 40 percent SPR (eighteen years), Tmin plus one generation time (eight years for gag grouper; nineteen years total), and Tmin times 2 (twenty-two years total) are appropriately calculated, and the five-year OFL and ABC yield streams associated with those rebuilding timelines for 2024 through 2028 are suitable for informing catch advice. The motion carried on page 223.

PAGE 243: Motion that the SSC accepted SEDAR 68 GOM scamp and yellowmouth grouper OA as consistent with best scientific information. However, the SSC thinks that an FMSY proxy of F 40 percent SPR is more appropriate for scamp and yellowmouth grouper based on its life history, thus should be considered by the council for management. Under an FMSY proxy of F 40 percent SPR, the

model derived estimates indicate the stock is not overfished or experiencing overfishing. The motion carried on page 246.

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The Meeting of the Gulf of Mexico Fishery Management Council Standing and Special Reef Fish, Special Socioeconomic & Special Ecosystem Scientific and Statistical Committees convened on Wednesday, September 21, 2022, and was called to order by Chairman Jim Nance.

INTRODUCTIONS
ADOPTION OF AGENDA
APPROVAL OF VERBATIM MINUTES AND MEETING SUMMARY: JULY 7-8, 2022 MEETING
SCOPE OF WORK
SELECTION OF SSC REPRESENTATIVE FOR THE OCTOBER 24-27, 2022 GULF COUNCIL MEETING IN BILOXI, MISSISSIPPI

CHAIRMAN JIM NANCE: Good morning, everyone. My name is Jim Nance, and I am the chair of the Scientific and Statistical Committee for the Gulf of Mexico Fishery Management Council. We appreciate your attendance on this webinar and input in this meeting. Representing the council is Dr. Tom Frazer.

Council Staff in attendance include Carrie Simmons, Ryan Rindone, Lisa Hollensead, Jessica Matos, and Charlotte Schiaffo. Notice of this meeting was provided to the Federal Register, sent via email to subscribers of the council's press release email list, and was posted on the council's website.

This week's meeting will include some the following topics: Adoption of the Agenda; Approval of the July 7 through 8, 2022 meeting minutes and summary; review of socioeconomic stock assessment workshop report, review of EFH dashboard; presentation of current approaches to allocation analysis; review of SEDAR 68 operational assessment for Gulf scamp; review of scope of work for 2024 operational assessments for lane snapper, gag grouper, and king mackerel; review of updated projections for Gulf gag grouper using SRFS; public testimony; and any other business.

This webinar is open to the public and is being streamed live and recorded. A summary of the meeting and verbatim minutes will be provided and made available to the public via the council's website. For the purpose of voice identification, and to ensure that you are able to mute and unmute your line, please identify yourself by stating your full name when your name is called for attendance.

Once you have identified yourself, please re-mute your mic or line. To signal you wish to speak during the meeting, please raise your hand, obviously, if you're in attendance, or raise your hand function, if you're online, and the staff will display your name.

Remember to identify yourself before speaking and also to re-mute your mic and/or line each time you finish speaking. Jessica will go ahead and go over the attendance, please.

MS. JESSICA MATOS: Lee Anderson. Luiz Barbieri.

DR. LUIZ BARBIERI: Luiz Barbieri.

MS. MATOS: Harry Blanchet.

MR. HARRY BLANCHET: Harry Blanchet.

MS. MATOS: Dave Chagaris.

DR. DAVID CHAGARIS: Dave Chagaris.

MS. MATOS: Roy Crabtree.

DR. ROY CRABTREE: Roy Crabtree.

MS. MATOS: Benny Gallaway.

DR. BENNY GALLAWAY: Benny Gallaway.

MS. MATOS: Doug Gregory.

MR. DOUG GREGORY: Doug Gregory.

MS. MATOS: David Griffith.

DR. DAVID GRIFFITH: David Griffith.

MS. MATOS: Paul Mickle.

DR. PAUL MICKLE: Paul Mickle.

MS. MATOS: Trevor Moncrief. Jim Nance.

CHAIRMAN NANCE: Jim Nance.

MS. MATOS: Will Patterson. Sean Powers.

DR. SEAN POWERS: Sean Powers.

MS. MATOS: Steven Scyphers.

DR. STEVEN SCYPHERS: Steven Scyphers.

MS. MATOS: Jim Tolan.

DR. JIM TOLAN: Jim Tolan.

MS. MATOS: Rich Woodward.

DR. RICHARD WOODWARD: Rich Woodward.

MS. MATOS: Jason Adriance.

MR. JASON ADRIANCE: Jason Adriance.

MS. MATOS: Michael Allen.

DR. MICHAEL ALLEN: Mike Allen.

MS. MATOS: John Mareska.

MR. JOHN MARESKA: John Mareska.

MS. MATOS: Luke Fairbanks.

DR. LUKE FAIRBANKS: Luke Fairbanks.

MS. MATOS: Cindy Grace-McCaskey.

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

MS. MATOS: Jack Isaacs.

DR. JACK ISAACS: Jack Isaacs.

MS. MATOS: Mandy Karnauskas.

DR. MANDY KARNAUSKAS: Mandy Karnauskas.

MS. MATOS: Josh Kilborn.

DR. JOSH KILBORN: Josh Kilborn.

MS. MATOS: Steven Saul. Tom Frazer.

DR. TOM FRAZER: Tom Frazer.

CHAIRMAN NANCE: Thank you very much. Now I have the Adoption of the Agenda. Are there any changes or modifications to the agenda? Ryan.

MR. RYAN RINDONE: No, but I was going to announce just something real quick, and so we have a few new faces that we won't see here, but that are in attendance, and so Skyler recently welcomed a baby girl, and Liese welcomed a baby boy, and Trevor Moncrief also welcomed a baby girl, and this is all in like the last two months, and so watch what's in the water.

CHAIRMAN NANCE: Congratulations to each of those families. From the adoption of the agenda, do I have a motion to adopt and a second?

UNIDENTIFIED: So moved.

DR. BARBIERI: Second.

CHAIRMAN NANCE: Thank you. Any opposition to adopting the agenda? Seeing none, the agenda is adopted. We now have the opportunity to approve the verbatim minutes and the meeting summary from our July 7-8 meeting. Any changes to those minutes or summary? If not, do I have a motion and a second to approve those?

DR. BARBIERI: So moved.

DR. CRABTREE: Second.

CHAIRMAN NANCE: Thank you. Any opposition to approving the minutes and the meeting summary from our July 7 meeting, July 7 and 8? Hearing none, those are approved without opposition. Our next item, we're not going to do the scope of work, and we will do those under each of our items that we'll discuss.

Selection of SSC Representative for our October 24-27 meeting, I will not be able to go to that meeting in October, and so I need a -- I need someone from the SSC to be able to go to the council meeting and present our summaries to the council during that council meeting. It's October 24 through 27, and it's at the Beau Rivage in Biloxi.

MR. RINDONE: The council will cover your travel and whatnot, and I will give you support for putting the presentation together and whatnot, ahead of that meeting, and so you won't be on an island.

DR. POWERS: I thought it was our custom to send the Chair, and, if the Chair couldn't go, the Vice Chair, and, if the Vice Chair couldn't go, then we chose somebody geographically proximate.

CHAIRMAN NANCE: Yes, and, in this case, both the Chair and the Vice Chair are unable to attend that meeting in October. We're

not both going to Tahiti.

DR. BARBIERI: At least not together.

CHAIRMAN NANCE: Not together. That's right, but, if we have someone from Mississippi, obviously that would be preferable, and so Paul or Trevor. Go ahead, Paul.

DR. MICKLE: On Tuesday, I cannot, and so the 27th I cannot do it. The leadership of the university is coming to the coast, and so it's a no-go. Do you have to be there the whole time?

CHAIRMAN NANCE: Monday through Wednesday, typically, and it depends on when the presentations are. It's going to be, obviously -- Most of the things are during the Reef Fish Committee, and so you're there for the entire Reef Fish Committee, and I'm trying to think when these others would be presented.

MR. RINDONE: For this particular meeting, especially given a lot of the socioeconomic topics that you will have to give a brief summary to the council about, I would say expect to come in Sunday night, and then you would be able to leave on Wednesday, and so then the council would deal with all your travel arrangements and whatnot.

CHAIRMAN NANCE: Sean.

DR. POWERS: I think Paul and the Mississippi folks should have the first right of refusal, I guess, but I was planning on being there anyway, just to help Dr. Shipp out.

CHAIRMAN NANCE: Okay. Paul.

DR. MICKLE: I agree, and I just got texted by somebody who is listening, and GCOOS is in Gulfport on Wednesday of that week, and so I have to attend Tuesday and Wednesday. I apologize, but those are things that I cannot miss.

CHAIRMAN NANCE: No, Paul. Absolutely. I mean, obviously, work comes -- When you have to go to those things. If I don't hear, Sean, would you be able to represent the SSC? Okay. Perfect, and so Dr. Sean Powers will be the SSC representative at our October 24 and 27 Gulf Council meeting. Thank you for doing that, Sean.

Item Number V is Review of the Socioeconomic Stock Assessment Workshop Report, and, Ryan, would you go over the scope of work for that, and I think Dr. Chan and Haynie are online for this presentation. Okay. Perfect, and so, Ryan, if you would go over

that, and then we'll turn the time over to them.

REVIEW OF SOCIOECONOMIC STOCK ASSESSMENT WORKSHOP REPORT

MR. RINDONE: Sure. Thank you, Mr. Chair. Doctors Chan and Haynie will give you guys a presentation on the socioeconomic aspects of stock assessments workshop, or SEASAW, report and recommendations for increasing assessment accuracy and improving management advice. The doctors will discuss the overall objectives and specific goals of this initiative and will present recommendations provided in the report, and so you guys should review the information presented and offer some suggestions and attempt to identify opportunities to use the information presented in the Gulf.

CHAIRMAN NANCE: Thank you. Dr. Chan and Dr. Haynie.

DR. ANDREA CHAN: I apologize, but co-presenter, Alan Haynie, is not able to make it, but a few of the other co-authors I think are able to call in, and so Patrick Lynch might be on, and Matt McPherson might be on, and John Walter, and so hopefully they can help answer questions.

CHAIRMAN NANCE: Okay, and Matt is actually here at the meeting with us.

DR. CHAN: Great. Awesome, and I just wanted to note that I do have to, unfortunately, leave at 6:45, or 1:45, and I'm giving this presentation from Dublin, and so thank you so much for having me, and I'm looking forward to sharing over our report.

CHAIRMAN NANCE: Okay. We'll turn the time over to you. Thank you.

DR. CHAN: Thank you. Okay and so, in this presentation, I will give a brief summary of some of the recommendations from the recently-published Socioeconomic Aspects in Stock Assessments Workshop Report, and I would like to acknowledge my many co-authors who are listed on the screen.

Why connect socioeconomics and stock assessments? Fish populations and the human institutions that depend on them are tightly-coupled systems. Fishing mortality is influenced by characteristics of the fish stock, as well as targeting behavior by the fishers. Changing management regulations act on the fishers and not the fish. Likewise, changes in consumer demand for fish products will first impact fisher behavior.

Understanding how fishers will change their practices over time is necessary for interpreting how any changes in governance will help or harm these fish populations, and integrated scientific processes are essential to support management decisions regarding tradeoffs among and between different ocean uses, including fisheries, including commercial or recreational subsistence, aquaculture, protected species, biodiversity, and habitats.

Social, cultural, economic, and indigenous sciences can provide information on temporal trends and the involvement incentives, motives, risk tolerances, and wellbeing of fishers and fishing communities. Further integration of data and analyses, when providing advice to managers, supports NOAA Fisheries' stewardship goal of maximizing benefits to the nation while ensuring the long-term sustainability of all living marine resources.

Understanding social and ecological interactions are especially important in the context of global environmental and market changes. We are seeing the impacts of climate change, and we're continuing to see the impacts of the global pandemic on our fishermen and fishing communities, and so climate change is already impacting fish species, by shifting their spatial distributions, which in turn will affect fishers' choices about where and when to fish or the spatial distribution of fishing effort. This change in fisher behavior will, in turn, impact the abundance and distribution of the target species.

Changes in external factors unrelated to the biological characteristics of the fish can also significantly alter the distribution of fishing effort. For example, during the COVID-19 pandemic, restaurant shutdowns reduced the sales of high-priced fresh seafood products, and, in response to this change in demand, fishers may have responded by switching target species, switching fishing gears and/or reducing their fishing effort. The full impacts of COVID on fisher behavior and fish stocks are yet to be realized. With ongoing and increasingly frequent disturbances to fisheries' socioecological systems, fisheries management is going to need to be more adaptive.

This work was motivated by a recommendation from the Stock Assessment Improvement Plan to consider socioeconomic drivers in the stock assessment process, when appropriate, with the goal of improved understanding of stock dynamics and improved management advice.

Likewise, the goal of integrating economics and social science into the next generation of stock assessments was included in the NOAA Fisheries Human-Integrated EBFM Five-Year Plan.

Working with human dimensions in stock assessment communities, we needed to define, in more detail, what it means to consider socioeconomic drivers, and initial discussions revealed that there was disagreement within and between communities about what constitutes socioeconomic data and what is considered using socioeconomic data. For this initiative, we took a broader approach than focusing on stock assessment modeling activities alone, to better capture the breadth of what was possible for improved integration.

Our shorthand for this project is SEASAW, which stands for Socioeconomic Aspects in Stock Assessments Workshop, and I really like this GIF, because it shows back and forth between the biological and human dimensions systems. This effort involved the formation of a steering committee with equal regional economics and population dynamics representatives. The steering committee helped develop a Google survey on current integration activities, identify key workshop themes, and draft the call for presentations. The results of both the survey and the national workshop were summarized and published as a tech memo.

The survey of current practices was distributed to the six NOAA Science Centers to collect high-level information on regional differences and economists, or other social scientists, involvement in the stock assessment process, socioeconomic data availability and usage, as well as how socioeconomics contributes to the scientific advisory process.

We then hosted an interdisciplinary workshop attended by stock assessment scientists and economists from all Science Centers, as well as some social scientists, academics, and managers. The recommendations presented here were developed collaboratively at this workshop, with supportive case studies from the workshop discussions, the survey, and the academic and technical literature.

I've been talking about the stock assessment process a bit, and so, for this project, we broadly defined this process to include data collection, data processing, stock assessment models and projections, harvest control rules, including using management strategy evaluation to choose between alternative control rules, and the delivery of scientific advice.

Communication with managers and stakeholders occurs throughout this process and is crucial to successful fisheries management. While these steps are inherently linked, we organized the recommendations and supporting case studies by each step, but some

case studies do support more than one of these steps.

This modified diagram shows one of the main punchlines of the tech memo. We recommend that the stock assessment process include collaboration between stock assessment scientists, economists, and other social scientists throughout the stock assessment process. This interdisciplinary approach will result in improved stakeholder inclusion, which requires dedicated effort to build trust with the fishing community, collect feedback, and develop solutions that work for the fishers and the fish.

Guided discussions with fishers on a range of topics, including stock biology, data quality, and defining social and economic objectives could help fill data gaps and improve both assessments and subsequent management advice. Economists and other social scientists are able to provide additional context about fisher incentives and behavior, to interpret observed changes in catch and effort data over time.

Ongoing collaboration can make socioeconomic input more consistent across assessments and help NOAA Fisheries better achieve its mission to profound sound scientific advice in support of an ecosystem-based approach to management.

Digging into the report a bit more, we developed twenty-seven total recommendations across the stock assessment process. While that may seem like a lot, many of these are related and would be straightforward to implement together. For example, economists, other social scientists, and stock assessment scientists could jointly conduct fishery-dependent data workshops with the fishing community, and, at these workshops, fishers can provide context on historical data series, such as providing insight for the maximum distance that can be traveled during a fishing trip, as well as advice on improving model parameterization for forecasted time periods.

In the next few slides, I will discuss one recommendation and supportive case for each of the stock assessment process steps shown on the left side of this slide.

A recommendation from the workshop that falls under data collection states that collaborative data collection programs should be expanded in each region. Our biologists and social scientists jointly design and implement interview protocols to obtain local ecological knowledge. Local ecological knowledge can be used to understand changes over time, such as those related to fish size compositions, durations of usual mortality events, fishing effort, and fishing practices.

Although not specifically discussed at the workshop, for some stocks, the collection of indigenous knowledge and the direct involvement of tribal communities in the data collection process may result in improved understanding of marine ecosystems and changing ecological conditions and should be explored further.

The example from the workshop that motivated this recommendation was presented by the Southeast Fisheries Science Center, and so it's probably very familiar to a lot of the folks on the call. The fishery biologists and the social scientists collaborated to systematically collect local ecological knowledge by interviewing fishermen about their experiences related to an unusual fish mortality event from persistent red tide.

They were able to extract information about the severity and duration of the red tide event, as well as historical red tides, and the resulting fish size composition of red-tide-induced mortality, recovery time after the event, and resulting changes in fishing practices. While the disturbance in this example was red tide off the coast of Florida, the methodology is applicable to other severe mortality events in other areas, such as those resulting from marine heat waves.

When data is being processed for stock assessments, social scientists should be more involved in either the development or evaluation of fishery-dependent data streams to capture changes that may be the result of economic, social, and management changes. Social scientists can provide valuable insights on the quality of fishing effort and landings time series.

A supportive case study identified through the survey of current practices involved issues with the commercial fishery data for the deep seven bottom fish species in the Pacific Islands. Due to changes in the data reporting forms over time, different metrics for commercial fishing effort needed to be applied and agreed upon.

Through data workshops including commercial fishers, many of these issues were resolved with guidance and support from social scientists. By including the fishing community and social scientists in the commercial data-filtering discussions, stock assessment scientists were able to make a number of improvements to specify the fishing effort time series and CPUE standardization processes for subsequent stock assessments.

Moving on to the stock assessment modeling step, we recommend that time-varying fisheries selectivity, based on size-based targeting and changing fleet fishing behavior should be integrated in

assessment models, where appropriate. Changes in fishing practices, which are responsive to market demands, changing management regulations, and protected species bycatch levels, among other factors, contribute to changing fisheries selectivity over space and time.

Fisheries selectivity is often assumed to be time invariant, shown by the graph on the left, when, in fact, in varies over time, like in the diagram on the right. Mis-specifying selectivity can lead to large areas in spawning biomass.

In the stock assessment for Pacific hake, fisheries selectivity is allowed to vary over time, based on previous simulation analyses that showed how including time-varying selectivity yielded multiple benefits, such as higher average catch, lower risk of falling below 10 percent unfished biomass, reduced probability of fishery closures, and lower variability in catch. The variation in selectivity over time is at least partially a result of changing fishing effort in response to variable cohort sizes, since Pacific hake recruitment can vary drastically from year to year.

Stock projections often assume that future conditions will be similar to long-term averages or recent values. One of the assumptions made when projecting biomass levels is to set both commercial and recreational catch equal to the ABCs in each out year. However, different ecological, environmental, and socioeconomic factors and interactions between these could lead to variable realized catch.

Our recommendation is that multispecies projections should be developed that account for feedback between market demands for co-caught species and fishers' incentives to participate in different fisheries, in addition to ecological interactions between species.

A case study presented at the workshop focused on a bioeconomic model of recreational angling that was developed to account for multispecies interactions in the Northeast United States groundfish fishery. Recreational catch can be quite variable from year to year and is rarely equal to the amount allotted to the recreational fishery. This bioeconomic model accounts for estimated monthly recreational mortality under the proposed management measures and incorporates those estimates into the development of the age-structured stock projections.

The economic sub-model estimates the probability that a prospective angler trip will happen. A choice experience survey provides information on future fishing effort and is the foundation of the recreational behavioral model. Cod and haddock fishing

grounds can overlap, and so regulations have been imposed on haddock to reduce harm to the depleted cod stock, and the bioeconomic model is used to simulate angler behavior under different projected stock structures and regulations to inform the choice of recreational management measures.

In a comparison of the age-structured stock assessment projections without economics to the bioeconomic stock projections, the authors showed that the bioeconomic model can capture how the regulations affect the recreational selectivities for cod and haddock.

If this approach was used in the standard projections, the biomass and catch advice would better address actual recreational fishing catch. In this two-species example, this model can address multispecies interactions. However, further research is needed to discern which assessments should be expanded to incorporate multispecies and their multi-fisheries interactions.

Our next recommendation is that socioeconomic information and analyses should be included in management strategy evaluations when alternative harvest control rules are being evaluated to help managers choose between alternative rules. Since harvest control rules dictate the amount of acceptable catch, there are inevitably tradeoffs between conservation and socioeconomic objectives.

Within a fishery, managers must balance limited catch to promote the health of target fish populations, conservation of bycatch species, including protected species, a sustainable fisheries business commodity and community wellbeing.

The Northeast Atlantic herring MSE included diverse stakeholder participation, via public workshops, to inform the choice of harvest control rules. Radar plots, pictured in the upper-right-hand corner, were used to communicate MSE outputs by showing tradeoffs between alternative harvest control rules. Attendees helped identify acceptable ranges for performance metrics that inform the MSE models. For example, stakeholders expressed interest in the stability of net revenues as a performance metric.

Finally, the last recommendation is specific to communicating stock assessment results to fishery managers and stakeholders. More interdisciplinary teams should collaborate in all regions to create system-level communications products to improve and standardize communication of socioeconomic indicator trends. Socioeconomic indicator data provide fishery managers with information on the relative value of catching certain stocks over others, the degree to which certain fleets or communities are

dependent on those stocks, and who will reap the economic benefits.

One relevant example presented at the workshop was on ecosystem and socioeconomic profiles, which were developed in the Alaska region, although pilot projects now exist in other regions. The table shown here is from the ESP for Gulf of Alaska pollock. The indicator trends exhibit drops in ex-vessel price and roe per unit catch that recently rebounded. These patterns may provide information about the average body conditions of adult pollock as well as fecundity, if other influencing factors, such as trends in roe prices, are accounted for. The final trend that shows that percent revenue in Kodiak from pollock is increasing, suggesting high community reliance on this fishery.

This document provides precise communication of trends and stock-specific socioeconomic variables that could inform the setting of catch limits by the fisheries management council. Socioeconomic indicators identified in ESPs could also be further integrated in the stock assessment process, such as by helping regional scientists and managers identify data collection priorities.

Here's our conclusions, and so, because fisheries are coupled socioecological systems, assessing fish stocks should involve more collaboration between economists, other social scientists, and stock assessment scientists at each step of the stock assessment process. Better time series of socioeconomic data and broader application of social science methods can improve understanding of interactions between human and fisheries systems.

When traditional fishery-independent and fishery-dependent data sources for stock assessments are unavailable, socioeconomic data streams, such as skipper surveys, could provide crucial information for timely management decisions.

For example, with a more variable environment, traditional data sources may become unavailable. Social science data streams can be part of our contingency plans and potentially help us improve the adaptability of the stock assessment process to global environmental and market changes. In order for this to be possible, we need to be willing to invest in additional socioeconomic data collection programs and collaborative research opportunities between biologists, economists, and social scientists.

Lastly, the stock assessment prioritization process and gap analysis could provide a useful starting point for determining which stocks would most benefit from expanded socioeconomic considerations.

This is just a note of a few things that we're working on, now that the tech memo is published, and so the NOAA Fisheries next generation data acquisition plan is currently being developed and is expected to guide national data acquisition for ecosystem-based management. I have been involved with the social science working group, which is helping prioritize and provide details on critical actions needed to improve delivery of social science data streams for EBM decisions. I am pulling on lessons learned from the SEASAW report to provide feedback for consideration in the social science data stream and platform recommendations.

In addition, a national group of NMFS scientists are employing a simulation framework to explore good practices for using interdisciplinary teams to develop scientific advice. For instance, we may be able to test whether advice from social scientists could improve assessment projections where only catch data and limited biological information is available.

Then we plan to continue to foster interdisciplinary collaboration within NOAA and beyond, potentially by working with international social scientists and stock assessment scientists on generalizing or expanding our recommendations from the SEASAW report to be applicable to other nations' stock assessment and fisheries management processes, and so I actually presented this yesterday to a group of folks at the International Council for Exploration of the Sea Conference, which is why I'm in Dublin and not able to attend in-person today. I think that's it, and I'm happy to take any questions.

CHAIRMAN NANCE: Thank you very much for that presentation. It's thought-provoking, and I think we've talked about this for a long time, and I like your SEASAW graphic.

DR. CHAN: Thank you.

CHAIRMAN NANCE: I think budget -- You know, it's always a seesaw of what data is collected, and how often it's collected, and those types of things, and so I appreciate this report. I think all of those points were very good. David, please.

DR. GRIFFITH: Thank you, Jim, and thank you, Andrea, for that presentation. I think it was very good, and somewhat overdue, but I'm really glad that you guys are thinking along these lines. My question is are the councils and science centers trying to develop some sort of standardized methods to collect social science data? I understand that you're very -- It seems like you depend quite heavily on local ecological knowledge and traditional ecological

knowledge, which I think is good, and there are a lot of methods in the social sciences that could help with that, the collection of that data, and also the processing of that data.

I am just wondering, and is the goal of this to develop some kind of standard methods that you use all over the country, and would those be flexible enough so that they could be applied to different regions, based on the levels of expertise and the numbers of indigenous people and that kind of thing? Thanks again for this presentation, and I really enjoyed it.

DR. CHAN: I mean, that's a great question. I would say that I definitely don't have control of standardizing methods across the centers, but I would say that this effort is trying to ensure that more socioeconomic information is being considered in the conversation, and it may not be the same indicators, and so standardized methods to collect the exact same data in each center -- That might not be a useful goal, because each stock is different, and fisheries are different, and we'll have to consider it on a case-by-case basis, but I'm hoping that, by promoting more discussion between the regions, we can identify situations where certain data streams would be useful in certain scenarios, and, rather than different regions having to reinvent the wheel, they would have a protocol to go with, if that makes sense, but I am actually not very involved in the actual collection of social science data, and so I would defer to any others who might have comments on that.

CHAIRMAN NANCE: David, thank you. I have a quick question. Sometimes we seem to always lump socioeconomic as like they're one thing, and are social scientists involved, if they need to move forward with things, and economists move forward with things, so that they're -- While we have it lumped here, but are there avenues for each of those disciplines being able to have separate data collection avenues?

DR. CHAN: I think so. Absolutely, and so we were limited in sort of staff power and time, in terms of being able to explore the different areas of social science, including political science, anthropology, separating out research economists, and so we did sort of lump it into considering socioeconomic information, but, yes, it would be useful to have folks from different disciplines actually represented and identify when you might want to talk to a political scientist, when you're working on an assessment, versus talking to an economist, versus talking to an anthropologist, and so, yes, I definitely think it's important to separate it out, but we did sort of want to do a broad approach in this first run of this project, so that we could be on the same page about what we're

talking about when we're talking about including social science in stock assessments and what sort of data streams would be useful.

CHAIRMAN NANCE: Thank you, and Matt -- Matt McPherson is here, and he's the division chief for -- I'm going to get it wrong, Matt, but is it socioeconomics for the Southeast Fisheries Science Center?

DR. MATT MCPHERSON: It's the Social Science Research Group.

CHAIRMAN NANCE: Thank you, and so, I guess, on the questions, if you have input, we certainly would appreciate hearing from you, also.

DR. MCPHERSON: Okay. Great. I can just stand here and add my part when things come up. In terms of data collections, we have separate data collections, and we actually have a fairly well-developed economic data collection, and we do -- You know, we collect economic information off of the logbooks, and we have separate surveys, also, to collect costs and other economic information.

We don't have as well of a data collection process on the social side, and so there's a pretty clear distinction between what economists do and what other social scientists do, right, and we have, in some ways, a different approach, different methods, different epistemologies, and so, anyway, we don't -- We have two social scientists, you know, in our group, and we do have a national set of social indicators, on the social side, which is mentioned in the report, and I think that's -- Those are available online, and they are consistent across the country, and we're working -- We do some sort of ad hoc data collection, and so for like disaster assessments, and we do surveys, and we are initiating a crew survey in the Gulf this year.

That is something that we've worked out with the Northeast, that has already done that a couple of times, and so we should have a consistent dataset on crew that includes a lot of the social indicators, and that will cover at least the whole east coast and the Gulf, and so that's sort of where we are on the social indicator side of things.

I haven't heard any discussion yet about, you know, any sort of national initiative for data collection, you know, based on this report, but we are just starting to kind of work through this, and so, you know, it could come up later on, but, right now, we're dealing with it more at the regional level, I think, than at the national level.

CHAIRMAN NANCE: Thank you. Rich, please.

DR. WOODWARD: Thanks very much. This is a really great report, and it had lots of really valuable information and ideas. The long list of recommendations on Table 2 in the report -- I read through those carefully, and I couldn't disagree with any of them. I mean, they all seem very well thought out, and I hope that this gets a lot of traction within the community.

My question is the -- On page 39 of the report, you write that pilot projects should be supported and develop good practices that can be shared across regions, but then, on the last slide of the report, or your presentations, you say good practices for using interdisciplinary teams are being developed, and so my question is would it be appropriate for a pilot project to be identified where, within one of the stock assessments for the Gulf, we really sort of bite into this and take it very seriously, or is that premature at this point? Where should we -- What should we be doing in the Gulf?

DR. CHAN: That's a great question. I have to admit that I'm less familiar with what's going on in Gulf fisheries, but I would say that is one of the big next steps for us, is we want to actually apply these recommendations to key case studies and see if we can improve the assessments using different socioeconomic data streams, and so, if you have recommendations for a fishery that we could focus on --

This is not anything set in stone, but we're considering doing a more focused workshop, where we could bring in interdisciplinary teams for each region, and we could sit down and work together on how to build-out an assessment to be holistic and include more socioeconomic information, and so that is something we want the regions to do, is identify priorities, but we haven't tasked anyone with that yet.

DR. WOODWARD: Thank you.

CHAIRMAN NANCE: Thank you. Jack.

DR. ISAACS: I really enjoyed this report, and I was glad to see it in print, so to speak, and get this type of thing out in front of a lot of folks. One of my favorite parts of the report, and it's hard to pick one, was the discussion of the reliance of the fishers on a particular fishery.

Those data are not always easily available, or easily reached,

because it's one thing -- You know, if you look at some of the fisheries, sometimes you'll say that a particular stock may only form a relatively small portion of the total regional landings, but, for the fishers who harvest that, it might be actually a relatively significant portion of their income, and I think, you know, if we're able to measure that and make it clearer to decision makers, we'll get better results, I would expect, and I really did enjoy the report, and I look forward to what comes next.

CHAIRMAN NANCE: Thank you. Luke.

DR. FAIRBANKS: Thanks. Some of my questions have actually been answered by the last few folks that have spoken, but I also wanted to echo that I thought the report was really interesting, and this is important work. I was curious, and the list of -- Well, I kind of have two questions, and they're somewhat related.

The list of recommendations is pretty extensive, and I agree that there are very few things that seemed out of ordinary or are tough to disagree with, but I was curious if there was discussion of prioritizing some of those recommendations or if that is something that would be left to maybe the regions to make their own decisions about.

Then, in terms of the kind of pilot projects, I was going to ask if there was going to be any efforts, or any interest, in knowledge sharing across the regions, since it sounds like some regions are more -- They have been doing a bit more of this than others, and I think those figures and graphs really demonstrate that, and I thought it was quite interesting to see just kind of the stark differences across regions, and, obviously, there seems like there's some great opportunities for cross-region learning that wouldn't necessarily require new pilot projects, per se, but just learning from those regions that have been maybe a bit more progressive with this type of data, and so that's all I had. Thanks.

DR. CHAN: Thank you. Yes, consistent communication was something that we definitely promote, but we understand that it's difficult, and so we brought, you know, economists and stock assessment scientists from each science center into the same room, and, in some cases, they hadn't met before, or they hadn't specifically worked together before, and they got the opportunity to sit down and sort of have their conversations on the side, which I think -- - You know, we didn't record that in any way, but I'm sure that was beneficial in and of itself, but, you know, this workshop was two years ago, and so it would be helpful to have some forum where we could promote that communication, but understanding that, you

know, everyone's time is limited, and so that was also stressed a lot at the workshop, was that they don't have -- A lot of the scientists don't have the time to work on additional projects to integrate their data sources, or methods, when they have so much on their plate already, and so we have to think of creative ways to promote that collaboration in a useful way.

CHAIRMAN NANCE: Thank you. Benny.

DR. GALLAWAY: I too enjoyed the presentation and thought it was very good, specifically for the examples included. I probably dozed off when you talked about the Gulf, and have you done any preliminary work on Gulf of Mexico systems to relate the huge differences between the ecosystem in the Gulf to some of the systems that I saw presented?

For example, a major fishery is the shrimp fishery, and it's an annual species, and effort has been a big issue with the shrimp fishery, and effort has declined to practically a fraction of what it used to be, and, all of sudden, we've got loggerheads washing up on the beach that aren't attributed to the shrimp fishery, and they're said to be emaciated, and so there's some big differences in the Gulf, and so I think you would need to do a Gulf-specific treatment, probably by region within the Gulf, and you may have done that, but I just probably missed it. Thanks.

DR. CHAN: So we had to do sort of a high-level approach, and we didn't go stock-by-stock. We asked folks to pretty much answer questions for their entire center, understanding that, of course, there is going to be variability, depending on the stock consideration, but, yes, we would love to dig into specific case studies from each region and see how we could provide more specific recommendations, but Matt might know a bit more about efforts in the Gulf specifically.

DR. MCPHERSON: We did -- You know, that red tide study was mentioned in the report, and that was something that we did, and that was, you know, integrating local ecological knowledge. That actually is probably the one little blip example that we have in the report of integration of this kind of information into the stock assessment process, and I think some of you may remember, and I think Skyler probably presented that, and we have a paper that's published on the results of that.

We've been working on red snapper local ecological knowledge, better understanding the system, as part of sort of the EBFM, working with Mandy Karnauskas and the IEA program, and so we presented some of the results that we got from that in the stock

assessment research data assessment, and we're sort of trying to figure out how to get the -- What's useful, and how can we get the information in in a meaningful way into the process.

Shrimp, I think we've been talking about doing some bioeconomic modeling and some other things about shrimp, and, I mean, we've done quite a bit of research about shrimp, but there's some -- I think some data issues right now, and we've had some transition in stock assessment scientists and things that have somewhat impeded our ability to work more on shrimp over the last, you know, year or two, but that is something that's definitely on our list, and so those are some of the kinds of things we've been trying to do to better understand the unique systems in the Gulf.

CHAIRMAN NANCE: Thank you. Cindy.

DR. GRACE-MCCASKEY: Hi. Thanks. I agree that this is a really great presentation, and I also agree with David Griffith that this is very long overdue, and I guess my question is, given that, up until now, and social science data, including economic data, but especially non-economic social science data, just is not prioritized the same as other data, in my experience in several of the regions here and the states, NOAA's regions.

I'm curious, and what was the impetus for this, for the workshop, for the report, and what's next? Is there any commitment to actually providing additional funding or divvying up the funding in different ways, so that social and/or economic data can actually be collected in a rigorous way and implemented in a meaningful way?

DR. CHAN: That is definitely a great question, and I, unfortunately, don't have any control over funding, and they don't pay me enough for that, but I definitely agree that social science data has not been prioritized in the same way, and that was evident in our survey results, even just looking at the number of social scientists versus the number of stock assessment scientists, but I do think, just from my own experience, that the agency is looking to possibly see how social science could fit into our future data acquisition plans, which is why they had a social science workgroup on the next generation data acquisition plan process, and so I did help contribute a little bit to that, but mostly other economists and social scientists from NMFS were contributing.

I think that we are moving in that direction, and, also, in the international community, there is a lot of discussion about integration and using more social science data to understand how fishing effort is changing over time and if we're even defining

that appropriately and at what scale is most appropriate for use in models, and so, from my personal view, I feel like we're moving in that direction, but I can't speak for the agency as a whole.

I do have to apologize, and I have to sign-off, but I would be happy to take any additional questions over email, if they're for me, and I hope that my co-authors are able to stay on and continue to answer questions.

CHAIRMAN NANCE: Thank you very much for being on the call. We appreciate it. Steven.

DR. CHAN: Thank you all for the opportunity.

DR. SCYPHERS: Thank you for the presentation, Dr. Chan. Ditto what everyone else said, and I actually loved the report, and I thought it was really fun to read. One of the parts that I particularly enjoyed, thinking about the role of the SSC, was some of the discussion around performance measures and identifying the ones that stakeholders care about the most, like revenue stability and things like that, and I think those things are areas where I would love to see more stuff presented to the SSC for us to consider.

I also really thought the part about forecasting was interesting, and, a lot of times, by the time data reaches us here, it's a few years outdated, and I think very current social science data can help us understand how a landscape, or an event, might have changed and contextualized some of the trends we're seeing, and so those were some of the report parts that I really liked.

One part that I was curious if much discussion had revolved around was I liked the structure of the six steps of the assessment process, but I kept wanting to think about integration across multiple parts, and I think the Gulf red tide example is a really good example for data collection, but it also hits lots of the other sections, and it's very good communication with stakeholders and managers, and it integrates with the modeling stuff, because, as was already mentioned, it's what we've seen here.

The question I was going to ask, I guess for you, Matt, is was there discussion around what approaches or tools might hit on multiple steps of the stock assessment process, recognizing some of the comments already made on the need for efficiencies, and I am partial to the Gulf, but I think that Gulf red tide example is a really good one.

DR. MCPHERSON: I think, traditionally, we've been fairly stove-

piped, and, you know, we've all kind of focused on our different disciplines. On the socioeconomic side, we've focused more on, you know, impact assessments and information that feeds into that, and so I think that this is somewhat of a -- A little bit of a -- It's a new way of looking at things, and I think what really is helpful, is going to be helpful, and what's been helpful to me, is really working closely with the stock assessment scientists on this, and so I think we're beginning to engage in that process right now, and we've started to have meetings with our SF folks.

They talked about these integrated interviews that we did for the red tide assessment, where we had a social scientist and a biologist, and so it's amazing how differently we see the world and how differently -- I mean, different kinds of questions and things that come up, from our own, you know, world view and disciplinary perspectives, and so that's really fruitful, and so I think we're not quite there, but we are -- We are considering it a priority right now, based on this, to really start to work through and break down the stock assessment process and where are there opportunities to integrate and what kind of information can we bring to the table with the ecosystem-based stuff.

We've started to do that, and we're trying to find those opportunities where it connects in with the stock assessment process, and, I mean, that's what we would be looking for, would be those kind of, you know, suggestions and opportunities, and just that kind of engagement, but it's a little bit of a different way. We're starting a different way of integrating social science into the whole process.

CHAIRMAN NANCE: Thank you. Rich.

DR. WOODWARD: This is a lot of fun, and it's a very interesting conversation. I guess my point is that it sounds to me that we need to start learning by doing, and we need to make sure that we do that in a way that's effective, and I was going to ask how big of an ask this is, but the fact that it sounds like they're already starting to gear up and sort of move in this direction, and maybe it's not as big of an ask as I would have first thought.

I do think the important thing is to make sure that, as we engage the social scientists in the stock assessment work, and sort of all of the recommendations sort of be thought through and documented how, in a particular case study, that was -- That we attempted to do that, or it didn't seem relevant or things like that, but it sounds like there is good movement in that direction, and I guess maybe one question, at the end, is do we need a ton of money from the agency to make this happen?

DR. MCPHERSON: I don't know. We can always ask for more money, right, but it's sort of like, at some point, you have to figure out what you can do with what you have, and then strategically figure out what else you can for that you think you can actually get funded, and so, you know, I think we're trying to see what we can do.

If I read the whole report, I'm kind of overwhelmed. It's like, oh my gosh, we can't do all this, and so it's looking for opportunities, you know, real strategic opportunities, where we think we could make a real impact.

I think the red tide was one of those kinds of things, and, you know, then, as this moves forward, then, yes, I mean, we probably are going to -- I mean, we're leveraging -- I think this will be something that ultimately will be very useful, when they talked about the spatial analysis, but Larry Perruso made a presentation to this SSC, a few meetings ago, and he talked about the spatial, and so now we've gotten some funding, through the wind energy project, to be able to develop a spatial fisheries information platform for the Gulf, and so we're going to integrate all that kind of spatial information into a platform that allows looking at localized effort, localized depletions, and you'll be able to focus in on specific areas of the Gulf and see what -- You know, obviously, respecting confidentiality, but to see what's coming out of there, how much revenue is tied to it, and even what communities are tied specifically to different areas.

We're able to leverage money through that, and I think, as this moves forward, we'll find opportunities to sort of, you know, get other pieces of it funded, but my own philosophy is let's see what we can do first with what we have and then start thinking about, strategically, where we need more money.

CHAIRMAN NANCE: Thank you. There was, back in the 1980s, a social scientist on the SSC, Tony Paredes, from Florida State, and, every meeting, they would ask Tony, anything from the social science guy, and he wrote a little paper on that, but it was interesting, and it seems like we've been talking about this for each -- For a long time, and I am thrilled that we have this report, and I think we need to take opportunities to integrate social science, economics, and biology as we look at these things, and so, as those opportunities avail themselves in the Gulf. Whether there is new money or not, we need to take those opportunities so that we can start to integrate this. David, please.

DR. GRIFFITH: Thank you, Mr. Chairman. I just want to say that

NOAA actually has been funding a lot of social science over the years, some of it through Sea Grant college programs and others from the Science Centers, and, you know, the socioeconomic indicators, they were developed with a bunch of social scientists over a number of years, along with indices of dependence on fisheries and things like that, and so there actually has been quite a bit of social science work, and I think that -- Done in the Gulf of Mexico, as well as other regions.

A lot of this, of course, does have to be tailored to the specific region, because each region is really distinct, and they -- I think there is a lot of kind of what you would consider technical reports, articles in *Marine Fisheries Review* and stuff that could give you a lot of background, kind of archival-level data, about different fisheries in different regions.

I also want to echo something that Matt just said, which is we really can benefit a lot with interdisciplinary work, and sending out biologists and social scientists together to interview fishermen, or community members, about specific issues that are facing the fisheries today I think is really a -- I agree that we kind of have these different mindsets about what's really important, but getting more of this integration, at the level of the field, actually going into the field together, I think is a very valuable recommendation, and so I just want to echo that. Thank you very much, again.

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

DR. MICKLE: Thank you, Mr. Chair, and great presentation by Andrea. I wish she was still on, but I will direct questions I guess to the group as well, but I can't seem to get past the endpoint here, or past the stock assessment process, and so, with these new economic data metrics influencing projections, and I'm referring my questions to Slide 14, if we can pull that up, and so it reaches that point, but NMFS, which is one of my favorite things about Magnuson-Stevens, but they step in and cause a harvest change. It's a really wonderful process to save fisheries.

When different new data gets incorporated into the projections process, at that stage, I don't understand how it makes it to decision-making, past the stock assessment process, and so, when I look at this slide, I always think there's something missing on the bottom here, the last step, and so my question to that is an example of fisher choices.

Economic data is very plentiful in -- I think probably more plentiful than biological data, in a lot of cases, and so, if

there's fisher choices -- If one stock is in trouble, and another stock doesn't have any data, I would think the economic data, if it's incorporated in projections, would just say multispecies projections and just go fish that other species, but you just don't know, because it's a data-poor species, and so I get nervous with data inequities and the management, the last step, that's not really discussed, and probably shouldn't be discussed, as far as this workshop, but I wanted to raise it up to the group, and how does it --

I don't understand how the economic parts of the data fits into projections, because, without a stock -- Without a stock, there is no fighting over the price of what things would be, and you have to have the resource first, and so I guess I'm a fisheries biologist, and very narrow-minded, but I'm having a really hard time understanding how the economic data process fits into the projections point, which falls, ultimately, in NMFS' hand at the end, which I would think would make them very nervous, from a legal perspective.

Anyway, my questions, I guess, are to the group, but I am having a hard time understanding it, and it may help us if -- I bet I'm not the only one in the room having that problem there, and then I will try to throw a productive statement of, in the Gulf -- We talked about it at the last meeting, between wenchman and spadefish, and that would be a great fisher choice of market demand interaction between species. I'm sorry. Butterfish. I wrote spadefish. Sorry. Butterfish.

Anyway, that's as recent as the last meeting, and it's a small fishery, and it's localized, and it checks all the boxes of a good pilot objective here, but, yes, thank you for the clarification. Wenchman and butterfish. Anyway, that's my question, is I don't understand how it fits into the last step, which is an action, a change.

CHAIRMAN NANCE: Thank you, Paul. Ryan.

MR. RINDONE: Thanks, Mr. Chair. Paul, I will take a whack at this, and so, with the way that we're currently doing the projections, you know, it back-feeds back into the terminal year of the assessment based on the parameters that you guys define, and one of those is sector allocations, and so looking at the economic analyses could have some influence on the decisions that the council makes with regard to sector allocations, which would then inform the projections, and so, as far as a direct influence, and, I mean, you could argue how direct that is and whether it's more of an indirect influence on the ultimate outcome, but it does

have a place, and I guess, looking here at this slide, market demands and fisher choices, and so we've had discussions in the past --

We jointly manage kingfish with the South Atlantic Council, and we've had discussions with them, in the past, about when certain seasons were going to be open, because it has an effect on the price of both coastlines, and not just in the Gulf, and we've had -- In the past, when we've talked about allocation issues, we've had the same conversations with them, because, if there are more fish commercially available in one region during certain times of the year, then it can impact everybody.

Those sorts of considerations could be taken into account on a more global level and a regional level, with respect to what sector allocations might ultimately be, when certain portions of the quota might be made available, say, you know, 60 percent during this part of the year and 40 percent the next, or something like that, and so we've had a lot of these conversations in the past, and sometimes these things turn into actionable management and sometimes they don't, but there is a plug for it.

It's not directly -- It's not directly in the projections process, and it's this thing that happens here on the outside that informs the allocation, and then the allocation ratio informs the projections, when the yields are generated.

DR. MICKLE: That's clear, and I appreciate that. That's a great answer to my question. I am optimistic, or scared, that -- I want to delve further, and could OY be left up with different data types? Could you delve that deep, because I think you probably could, very dangerously, but, from a quantitative perspective, it could potentially be done.

MR. RINDONE: Well, I mean, I think that OY is something that we struggle to define, right, because it might mean different things for different sectors, for different species. I mean, we could have dozens upon dozens of definitions of what means, and so anything that would help better define that would certainly be appreciated, from the management standpoint, because it's something that the council struggles with.

It's obligated to try to achieve, and it struggles to define, and this is one of the less-great things that we currently deal with with Magnuson, with trying to find a way to define this for multiple species, and, right now, we try and look at it, from an FMP level, to the best of our ability, because a lot of these fisheries are multispecies and multidisciplinary, and so, if it

could help with that, then that would certainly be a welcome improvement.

CHAIRMAN NANCE: Optimum yield, we've never really defined who it's optimal for.

DR. MICKLE: That was my point, Jim. Thank you.

CHAIRMAN NANCE: I appreciate that. I appreciate that point, because, while we have it there as optimum yield, it can be -- Depending on what it is, it's optimal for a variety of -- Right now, we're more biology. Luke.

DR. FAIRBANKS: Thanks. All this discussion just makes me think of more and more stuff, and so I will try to limit myself a bit. First, I will mention that the optimum yield -- In the report, there was one of the presentations at the workshop that looked like it delved into that question, and it was kind of rethinking MSY, and maybe other sort of yield or other goals that management should use as an objective, and so I would be curious, and I don't know where -- Maybe the presentations are all online somewhere, and I don't know.

One thing I was thinking is kind of combining what Paul and David -- Their two comments and questions, and that is I would agree with Dr. Griffith that NOAA does fund a lot of social science research, more and more, and I think probably some of us here have received funding from them, but, you know, at the same time, kind of what Paul was saying is where does the -- How does that actually feed into the final stages of, you know, a stock assessment and management process, and I think that seems to be kind of the unclear, or missing, step.

You know, I've seen a lot of great, you know, federally-funded social science work on fisheries and coastal communities, but I don't think it's ever -- It's often not entirely clear how does that actually feed directly into a process like this for stock assessment and management, whereas, you know, with some of the other elements of stock assessment, I think it's just more institutionalized, so people know, you know, how to feed into that process and what data are useful and what is used and what could be used, and I'm speaking generally, and that's not always the case, and so I think that's kind of a challenge, in and of itself.

It's not just collecting the data and prioritizing the data, but it is that question of how do we actually operationalize it, and, you know, I think kind of a good example is in the report, on page 50, this figure of data that are available, but not used in stock

assessments, and, you know, it's kind of striking that there is a lot of relative basic, you know, economic data particularly, but also stuff that's more related to social conditions or fisher behavior, and it's not used, and that is kind of, in a way, maybe low-hanging fruit, if we're thinking of, you know, where could we get the best bang for our buck in trying to incorporate these data, and it's probably right there, looking at which regions have successfully done it and how they have done it and how it could be done in here and in other places.

I will also note that, unless I'm reading the figure wrong, I don't think the Southeast Fisheries Science Center is on that graph, and so I would be interested in that.

CHAIRMAN NANCE: They're the yellow one.

DR. FAIRBANKS: That's the Northeast, and I think there's only five.

CHAIRMAN NANCE: I thought it was Southeast. Oh, I see.

DR. FAIRBANKS: But, in any case, I think, you know, that's kind of what I have to say for that. You know, there is a lot of great fisheries social science out there, and people are publishing really good stuff, and a lot of it is federally-funded and state-funded, but I don't think it -- You know, a lot of it doesn't come close to this process, even though it might be useful, and so making those connections I think is also, you know, kind of a critical task that needs to be done, kind of urgently, if we want to achieve these goals.

CHAIRMAN NANCE: Yes. Thank you, Luke. It seems like while, Matt, there is -- We've talked about that there is more funding going in for social science work and things like that, and it seems to be that they're point estimates. You have one this year, and you have one in another five years, and you have those types of things, as opposed to, on the biological index, we've been collecting those now for twenty years, and we know it's important, and so that continues to be funded.

I guess, from the social science, or the economic things, maybe it would be good to, from the Southeast perspective, key-in on those different avenues and then determine which ones we need to carry forward that would be beneficial in the assessment arena.

DR. MCPHERSON: Yes, and I didn't mean to say that we couldn't use any additional funding for anything, and we certainly can have more systematic -- You know, we have a need for more

systematically-collected social data, in particular, because we do systematically collect a lot of economic data, and we're getting some of that data now on some of the electronic vessel systems, monitoring systems, as well, and so we have more of that systematically collected on an annual basis on the economic side.

On the social side, we're using secondary sources of data, almost exclusively, or we're doing ad hoc, and that's why like now we're getting ready to do the crew survey, and they've been doing those systemically up in the Northeast, and I think this will be the third time that they do it up there, but this will be the first time that we do it here, and so that would be something -- You know, a data flow that we would need to then have more consistent funding for.

If there are other opportunities that come up, then, yes, and, I mean, that's why I'm saying, as we work through this, then we'll find those opportunities and say, you know, we need to fund this so we can have this, and I'm just saying, right now, I don't think that having more people would always be useful for us, but I'm just saying, if we throw money at it, it's somehow going to happen, and, no, and I think we need to think it all through and figure out, critically, what we need and then find the money for that.

The other thing is just I don't know why the Southeast isn't on here, but, if you look at the Northeast, probably we're very similar to that, in terms of the data that we have, and it's not integrated into the stock assessment.

CHAIRMAN NANCE: Thank you. Scott, do you have a comment to that point?

DR. CROSSON: Hi, Jim. It's good to hear from everybody. I was at this workshop, and I'm an economist at the Southeast Fisheries Science Center, and I work with Matt, and I'm also a member of the South Atlantic Council's SSC, and so I'm probably exposed to a lot more stock assessments than most economists that are in my group with me, but a couple of different thoughts on this.

This is obviously a typo, because we do collect a lot of data in the Southeast that are on this list, and I would be curious, from the stock assessment standpoint, whether there has been any kind of lit review looking at the effects and incorporating any of these variables on model runs in the stock assessment process, in a number of different contexts, because, even inside the United States, inside NOAA, in the different Science Centers, I'm aware of different models that are being used on the west coast, the east coast, and even the Beaufort Lab, I think, runs different

stock assessment models than the ones that are used for the Gulf of Mexico, by the assessment scientists that are here in Miami.

There's a lot of different models, on the stock assessment side, that are being used, and it would seem to me that this is ripe for someone to go in there and review what attempts have been made to sort of incorporate some of these variables into different model runs and see if it has any effectiveness on the output, and I know there's also, from the NOAA side -- I believe there's some sort of a working group that's supposed to be developing a more holistic stock assessment model that should be used nationally.

I know I've talked to different stock assessment people at the Beaufort Lab that have been part of that, and so I know that's in the -- I believe that that is, in the long run, something that NMFS is trying to develop, and, in terms of standardizing things from the economic standpoint, I mean, at this workshop -- Economists and stock assessments scientists can talk to each relatively easily, because they're both pretty quantitatively oriented, and it just seemed like there was a lot of opportunity for things to happen in the future, but, yes, there's still stuff that we're sort of developing along and trying to get to know what might be useful.

I think, at this point, a lot of this probably is just seeing how it can be incorporated into the process, whether it adds any kind of value, because this is a lot of variables, and a lot of them that we have been collecting through the years, and so this is definitely something that we should be looking into, whether it's somebody at a university or somebody inside NMFS or wherever, but that's all. Thanks.

CHAIRMAN NANCE: Thank you, Scott. Tom and then Jack.

DR. FRAZER: Thanks, Jim. I really appreciated kind of the dialogue between Ryan and Paul, right, and these are things that we typically about, what type of socioeconomic information needs to go in on the front side of an assessment, and how does that kind of ultimately filter into some decisions that might be made with regard to allocation decisions, and it's kind of this iterative process, and I get that.

We have this tendency, particularly in this group, to try to figure out, you know, how do we put things and monetize them, right, or quantify them, so we can optimize, and that's how we do it, right, and I'm always thinking about the effects of these decisions on, you know, kind of fishing communities, for example, and what a decision -- How a decision might impact a particular community,

but I don't really know -- I am stepping outside of my wheelhouse a little bit, right, and I really don't know what a fishing community is, to be honest with you.

I mean, what's the extent of a fishing community, or a functional one, and, even though -- When we make a decision, how would you even be able to weight that in the equation? You may not be able to quantify it, in the way that we typically do, but it has value, right, and, if a particular community is -- You know, it's part of our cultural heritage to maintain that, right, and how do we even go about considering its value in the decision-making process?

I can't even begin to tell anybody that, right, but, to me, it would be helpful to hear from the sociology side of the world that these are some things that you could do, or you should consider, right, and that would probably, I think, move the ball a little bit. I think the input, right, needs to come from the sociologists themselves, because I don't know the right question to ask, but you see where I'm struggling with some of these things.

DR. MCPHERSON: We're struggling with some of those things as well. We just -- I had a conversation yesterday about what is a fishing community, and, you know, Magnuson doesn't specify, and, basically, to me, it says, you know, you take a look at -- I mean, it specifies that it's a geographic community, right, and not an identity community, but a geographic community, and then it just talks about substantially engaged and substantially dependent on fishing, and I think that might be somewhat of a -- I mean, we have developed indicators that would show, relatively speaking, what communities are more engaged and reliant and dependent on fishing, commercial fishing and recreational fishing, than others, and so you can take a look at that, to look at those dependent -- You know, the community fishing-dependent metrics that we have.

DR. FRAZER: I get that, but, I mean, I will drill down with an example, and I don't want to apply it to the Gulf, and it's a generic one, right, and so let's say, for example, you had a limited-access fishery, or an IFQ fishery, right, and one of the goals of that was to reduce overcapitalization in the fleet, right, and so you -- Hypothetically, you had a fleet that had a thousand vessels in it, and then, ultimately, to make it operationally efficient, you got down a hundred, but, as a consequence of that, you drove away, or precluded, fishing activity in five coastal communities somewhere.

You could say what the economic cost might be to that specific community, or one of those five, and what the gains might be, or the benefits, for those that remain in the fishery, but what I

don’t know is how to put a value on the fact that I’ve lost five fishing communities, and there’s a cultural value there, right, that I don’t know how to weigh, and our traditional science doesn’t allow us to do that, in my view. That’s what I’m trying to ask, from the sociology side of things.

DR. MCPHERSON: Well, I will take responses from other social scientists who are here as well, who may have suggestions, and, I mean, for me, I think you -- You know, we have information about how important those fisheries are to those communities, and some of those things -- We don’t have a good ability right now, with the indicators that we have, to sort of like feed in a change and then see how those metrics change, to be able to evaluate it that way, with how much is fisheries dependence going to change, or how is vulnerability going to change, if we make this change to their fisheries.

We have economic data that can suggest that, but then I think we normally, as social scientists, would also look at the importance, and a lot of it is sort of qualitative information, right, but the importance to local identify, the kinds of traditions they have, the kinds of ceremonies they have.

You know, talking to local people about how important these fisheries are in their lives, how far back they go, generationally, and things like that, and then have to sort of evaluate and weigh what the impact is going to be on that fishery and how it could potentially impact, you know, those values and those specific communities, but we don’t have a good way of sort of like modeling that right now, and it’s something we’ve been kind of struggling with and looking at and seeing if, with those social indicators we have, there is a way that we could make those more responsive to changes, so we could -- You know, we could predict sort of how that would impact vulnerability and these other things overall.

That’s kind of the way that I look at it, but I am not the one who specializes in writing-up those effects analyses, and so, if there are other social scientists who may have a better response to that, please pipe up.

CHAIRMAN NANCE: Jack.

DR. ISAACS: Well, first of all, I have to say how great it is that we’re here having ninety minutes of discussion on the importance of socioeconomics in fisheries management. I’ve been reading economic journals for almost thirty years now, and the conclusion that comes to me is that, very often, economists do a lot of research on topics that other people just really don’t care

very much about, and I thought of what Luke had to say, about the importance of prioritization.

We're here as an advisory panel to the council, and I wonder if, and to what extent, it might be appropriate to ask the council what their priorities would be and what economic data, what social data, would help them make more informed decisions, and, if we had that, it might help us set the priorities more effectively.

CHAIRMAN NANCE: Thank you, Jack. Will.

DR. WILL PATTERSON: Thanks, Mr. Chair. I'm sorry that I came in kind of the middle of the presentation, but I think I caught most of the gist of it, but the conversation that's happening now is kind of where my confusion in how to evaluate this lies, in that we're kind of switching back and forth here and talking about assessment processes and management processes, and so it's confusing, to me, how these types of data here, that are listed currently on the screen, many of them how they would be used in assessment processes here in the Gulf, and part of that is because we haven't been using them, and the other part is there has to be some extra analysis done to talk about how these things might impact targeting, or might impact selectivity, or might impact, you know, the temporal coverage of the fishery, or even the spatial coverage of the fishery, and so there are other analyses that have to be part of this.

It's not just data available and not used, but it's data aren't available, and secondary analyses haven't been performed. Therefore, they haven't been considered in the assessment, and that's a different thing than I think some of the management concerns that have been talked about.

CHAIRMAN NANCE: That's a good point, Will. Thank you. Rich.

DR. WOODWARD: On that -- Just following-up on that last point, I mean, absolutely. I mean, if you're going to sort of just choose one here, like fuel costs, to inform stock assessment analysis, that's going to be -- That's going to require a new way of thinking about things.

In terms of a new way of thinking about things, I also want to just emphasize that, if the goal is to improve the use of socioeconomic data in the development of stock assessment type of analysis, we need to not just have more data, but we need to expand the scope, and so, for example, it was mentioned of a crew survey, and, well, the questions that you would ask, if you're interested in sort of the socioecological effects on the crew, is going to be

very different than if you're trying to use those data to understand the health of the fishery, and so I think it's important to include interdisciplinary research not just in the analysis of existing data, but, when you're going out and gathering new data, we've got to have a lot of different hats at the table, to make sure that the right data are being gathered.

I've seen too many surveys that, you know, with one additional question, you could have asked a really interesting question, or, with one additional question on the survey, you could have answered a new question in the science, and you can avoid those mistakes only by having a wide range of people involved in the design of those data-gathering efforts.

CHAIRMAN NANCE: Thank you, Rich. David.

DR. GRIFFITH: Thank you, Mr. Chair. I was going to respond to the issue of, you know, trying to put a value on things. I know that, throughout the social sciences, in almost every social science, there are ways to quantify practically anything. I mean, you know, you can talk about quantifying things like alienation and quantifying job satisfaction, and that's, in fact, what Richard Pollack has been doing for the past, I don't know, twenty years, is quantifying happiness.

He's trying to figure -- He has studies commercial fishermen, and fishing communities, and, essentially, he's trying to understand the level of happiness in these communities by creating indices and things like that, and so there are ways to measure things that don't seem very amenable to measurement.

The other thing though is that we also have to broaden the way that we think about understanding social phenomenon, and understanding even economic phenomenon, that is in fact qualitative, and we have to, you know, try and make some of these decisions based on more qualitative assessments, rather than reducing everything to a modeling effort, quantitative data, and so I think, when we start talking about -- I agree with Paul's statement about, you know, how do we incorporate this stuff into something like stock assessment.

Right now, really, what it's telling is, if we put more restrictions on one species, fishermen are probably going to go to another species, and it can give us that kind of information, and that can kind of help us gauge, you know, how regulations are going to affect fishing behaviors, fishing decisions, things like that, and I think Paul mentioned wenchman and butterfish, and I think that would be an interesting study to look at.

What I'm saying is that this is a first step, and it seems, to me, that this is a -- Not really a first step, and, I mean, we have been thinking about these things for quite some time, but it is -- We're now trying to figure out how do we consider this in something like a stock assessment, and, in some cases, the data that we collect is not really going to be relevant to stock assessments, and I would agree with Paul on that, but there may be ways that we could inform that process.

I, again, would say, as so many people have said in this discussion, that interdisciplinary work, you know getting these different scientists talking to one another, and going beyond just the numbers, and talking about qualitative issues as well, is really important, and so thanks.

CHAIRMAN NANCE: Thank you. I think, as we discuss and look at this report, and I think Will brings up a very good point, in the fact that there are data that would help in the assessment itself, to give us more information there, and there are also data that would help in the management aspects after the assessment is done, from an allocation standpoint, and so, every time I think we -- I mean, there is data out there, but we need to, I guess, find it and, through collaboration, be able to discuss that, so that we can better these assessments through time, and I think that's the goal. That's what I am seeing in this report, is to try to integrate this.

We've been talking about this for years, and we just need to move forward on some of these things and be able to integrate. Matt, are there -- Then Cindy, but are there specific things, from this body, that you would like to hear, and I know this was a general report, and certainly I think the Science Center is moving forward on moving towards integrating this, but are there aspects that you would like to hear anything from this body?

DR. MCPHERSON: Well, thanks for the opportunity. I mean, a lot of points have been raised that have been, you know, really helpful, and I guess -- You know, if there are other specific suggestions about opportunities of where we could, you know, better integrate certain information, data, whatever, if anybody -- If there are glaring omissions that somebody wants to point out, that would be helpful for us, to direct our efforts. I mean, those kinds of suggestions, I think, would be, you know, what would be most useful.

CHAIRMAN NANCE: Thank you, Matt. Cindy, please.

DR. GRACE-MCCASKEY: Thank you. I was going to go back to Tom's question about the -- Or the example of consolidating the fleet and then that you lose, right, whatever that means, X number of fishing communities, and I think there is an example in the report, and not specifically that, but it uses management strategy evaluation, and so I could see where you could evaluate a case like that using management strategy evaluation, right, where you see, if you implement this management strategy, it has these impacts in these different sectors or different aspects of the fishing -- Of fisheries, I guess, right, community plus stock plus whatever.

Still, there is someone who has to look at that graph and make that decision, right, and so, even if that's a way to utilize some of this information -- I mean, there is still people having to make that tough decision, and is it worth losing five, or all those fishing communities, right, and so I think that's part of the reason why, in general -- I mean, this is the kind of stuff I do research on, and so I think a lot about it, but why most western management systems have tried to quantify everything, right, and turn it into economic value, but how can you quantify the economic value of the loss of fishing communities, whatever that means, people's livelihoods, one person's livelihood versus 400 people's livelihood, right, and how do you -- I don't know if that helps.

DR. FRAZER: That was the point, right, and, I mean, at some point, you're right that somebody, some body, has to make a decision, right, and part of that decision can be rationalized because you've got strong quantitative data to drive it, but there are the intangibles, right, the socioeconomic side of things, that are extremely problematic, and so that's why I asked, very specifically, even if you can't put a number on it, how would you go about weighting it? Do you know what I'm saying, and some help with that decision-making process would be really valuable.

CHAIRMAN NANCE: Thank you. Luiz.

DR. BARBIERI: Thank you, Mr. Chairman. Matt, just to put you a little bit on the spot here, and this may be a little early for this discussion to get into specifics, but, I mean, you can see that receptivity of this report by the committee was really positive, in how people have engaged in this discussion and how many points, right, were brought up and how important people realize that this information is.

Can you give us an idea, or do you have a feeling, at least at this point, of what would be the possibility, within our Science Center, to start investing in getting additional positions, hiring

additional -- It looks like that you're going to need more people just to handle the workload that this would generate.

I mean, just to go to data workshops and review all these reports and try to integrate all of this is going to have to have additional bodies, with quite a bit of expertise, interpretative capacity, right, to handle all of this, and this thing -- As we know, personnel is one of the most expensive things that we have budget for, and so do you have any idea if there is any plan within the Science Center to increase capacity in our socioeconomics research group?

DR. MCPHERSON: There are no plans, that I am aware of, to increase socioeconomic capacity, and even Mike Jepson retired recently, and he was an anthropologist, but he did a lot of this work on the social indicators, and his position was basically eliminated from SERO, and so we're even -- You know, we're short another, and so I would -- If this is information -- I mean, we're going to try to show how this could be extremely valuable and useful in the fisheries management process, and hopefully that will create the context for being able to, you know, get more positions.

I mean, we have seven right now, or we have eight, including me, and I'm kind of half-and-half in the research and management side of things, but that's what we have. We have seven economists and two social scientists, and so we want to show success, but, if this is something that people consider to be valuable, getting sort of more of a chorus of support towards, you know, increasing and expanding our capacity, because we do a lot of work -- We've been able to get funding and get a number of contractors, and that's who we've been -- The recent work that we've been doing, we've been working with a lot of contractors, but, you know, we could use more, you know, full-time people devoted to this.

DR. BARBIERI: Right, and that's exactly what I'm thinking about, because a body like this -- You know, the committee gives this to the council, and the council making a deliberate statement, right, to the Science Center, or to the agency as a whole, writing a letter expressing how well received this report was and how animated this discussion actually became, because people really see the value of this, and it could help communicate to agency leadership that this is an issue that we feel needs additional resources, right?

I mean, thinking in our case -- Matt, think about that, and it's one Science Center and three councils, right, and so it's -- The complexities that we have, in terms of the types of fisheries and the geographic scope, it's monumental, really, to have seven or

eight economists in the Center, and that's really difficult to believe how you can get it all done.

DR. MCPHERSON: Right. Well, we can't. We can't get it all done, and that's why I say we have to just find little opportunities. You know, we're getting ready to engage on a large MSE for dolphin, dolphinfish, in the South Atlantic, and that hopefully will serve as kind of a pilot, and we're doing workshops, stakeholder workshops, to look at the management objectives and see, you know, what would optimum yield be for different groups and different areas all up and down the coast, and so we're involved, you know, in different projects across councils.

I received a letter from the council, I guess, maybe six weeks ago or something, that I haven't responded to yet, and I need to respond to it, but it was basically asking for more data. Like we need more social data, you know, and I was like, we would like to be able to provide more social data, but, you know, as opposed to sending me a letter saying, you know, we want more social data, which is expensive and complicated to collect and everything, if this is something that's a priority, let's see if there's a way that we could join together to at least, you know, express that this is a priority and it's not just the social scientists who are saying, hey, we need more of this, but the SSC, the council, whoever -- You know, that would be helpful, I think, to maybe get some movement and help us to get some more capacity to bring to the table on these things.

DR. BARBIERI: Right, and I feel that -- Yes, so that's something that I think we can do, by issuing some kind of a statement and working with the council, right, to articulate that desire and the need to move forward, for sure, but it's also this issue of, you know, how do we get the agency, going beyond just the Science Center here, but the agency, because the squeaky wheel gets the oil, right, and so how do you get the agency to try and prioritize what comes over here, when, as you know, we have a variety of needs that, for quite a while, we've been trying to address regionally, right, and so articulating this need very clearly I think would be very important, and so we'll try to do that.

CHAIRMAN NANCE: Thank you, Luiz. Any other comments from the SSC? We certainly appreciate the presentation, Matt, and it's nice to have you here in our meeting with us.

DR. MCPHERSON: Thank you very much for the opportunity. It was a great discussion, and I learned a lot.

CHAIRMAN NANCE: We'll go ahead and take a break until 3:00, and

then we'll come for Item Number VI, Review of Essential Fish Habitat.

(Whereupon, a brief recess was taken.)

CHAIRMAN NANCE: Okay. We're going to go ahead and start. Everybody come back, please. Okay. We'll go and reconvene, and we're going to do Item Number VI, Review of Essential Fish Habitat Dashboard, and, Ryan, would you go over the scope of work for us, please?

REVIEW OF ESSENTIAL FISH HABITAT DASHBOARD

MR. RINDONE: Sure, and so the council is considering updating its current descriptions of essential fish habitat for managed shrimp and finfish species through a generic amendment, and Dr. Lisa Hollensead is here to present a web tool which will allow for a visual comparison of the proposed management alternatives and available benthic habitat spatial data layers for the SSC's review. You guys should explore this web tool, poke around and whatnot, and ask Lisa all the questions that you can possibly imagine.

CHAIRMAN NANCE: I know she's ready.

DR. LISA HOLLENSEAD: Thank you. For a presentation outline, kind of jumping off of what Ryan said, to start off, I'm going to review the EFH description methods that we have for Alternative 2 and 3, currently, and, if you recall, Alternative 2 is the methodology that is currently used, which is clipping spatial data layers based on habitat characteristics and species life history tables, broken down by life stage, but we are using more contemporary data sources for those.

If you recall, what we have on the books now is from, you know, 1986, and so this is going to be updating some of those things, and then I'm also going to touch on a little bit of that Alternative 3, which is the kernel density estimation, and I will sort of give a little quick overview of what that is, just to remind the group as we get to that, and then I'm going to introduce the EFH webtool that we've designed, using the R Shiny App, and I'm going to go by each component and sort of just walk through the use of that tool, including the ecoregion and depth zone characterizations, the habitat spatial layers that were used to inform the clipping process that we did, and then go through those descriptions that we have for Alternatives 2 and 3.

In doing this exercise, we recognized some things that we wanted to bring to the group's attention, and so I'm going to report some

of those example observations, and, you know, perhaps have a little discussion on this, and I will propose some next steps, and so what we might do to address some of the things that we've observed so far, what are the things that we can do moving forward, and then I would like to get feedback from the SSC on whether or not, you know, the group recommends that pathway forward or has any other questions or comments, ideally, to go back to the council.

This is sort of an unconventional and technical document, and so I think the council is going to look to the SSC to help provide some guidance, and so we can give them just sort of a summary of what we've discussed here.

Just some real quick background of what is essential fish habitat, and so it is defined -- It was defined in 1996, with the Sustainable Fisheries Act, as those waters and substrates necessary to fish for spawning, breeding, feeding, and growth to maturity. As I mentioned before, the Gulf Council does have these descriptions on the books, and that was completed in 2004, and for all managed species by life stage, and those life stages include eggs, larvae, post-larvae, early juvenile, late juvenile, adults, and spawning adults.

It's stipulated as well that the council should have a five-year review of those descriptions. That was done in 2010 and 2016, and you think, well, okay, 2021, and what's going on with this, and, at the last five-year review, there was a recommendation by the Habitat Division to re-up the amendment, so we have, you know, more contemporary data sources that could be used, and so wrapping up what would be the five-year review in this broader amendment as well, and so that's what we're working towards, is sort of this larger body of work to put all of these things together, and so that's what we're currently working on now.

Just a review of these ecoregions, and here's a table describing them as they relate to the NOAA statistical grids, and it's a little bit easier than visualized here, and so this is what they look like, and there's five of them, moving through. Lastly, there is also these descriptions of depth zone, with estuarine meaning inside barrier islands and estuaries, nearshore being water depths of less than sixty feet, and offshore being water depths of greater than sixty feet.

We've incorporated some of these data layers into our habitat webtool here, and the link is provided there, and it's also in your meeting materials. This is a beta version of the tool, and so this is us sort of making sure we can get some things to work and get things visualized, but you will notice, at the top there,

are these tabs, and these tabs allow you to sort of go through the various components of the EFH that we are visualizing, and so, first, I'm going to go over the depth zones and the ecoregions, and so those are sort of the easiest to sort of introduce folks to.

For example, if you clicked on the Depth Zone tab, you will get these three layers that pop up that correspond with those depth zones, that estuarine, nearshore, and offshore habitat. As I mentioned before, you can toggle these on and off, to compare them. Similarly, this has been done for ecoregions as well, all five ecoregions being displayed here in the webtool, and so I know that was fairly simple, but it's nice, sometimes, to make sure that you can do the simple things, and so the R Shiny App is able to correctly draw and upload those layers from our ArcGIS server, and so we feel fairly confident that what we're asking it to do is what it's actually showing us and that those individual layers can be toggled on and off, so that you can see the progression and do some comparison analyses.

The next step is to work on some of those aesthetics and get the user interface to be functional for the tool as a support evaluation decision tool for EFH.

We also have those depth zones and those ecoregions, and, as well, there is habitat characterizations, and they're listed up here, and this is an important component of beginning to clip these layers together, and so we have these habitat layers that have been updated, and these are more contemporary data layers, and so we've got some more contemporary data, and many of them -- Some of them go up to 2021, and some of them are more like 2010, but they're not 1986, right, and so we've got some newer data layers.

The metadata for all of these layers that we have available are available in your meeting materials. I had given something previously, but this goes into a much deeper depth, a deeper dive, into those, and so, at any point, if anybody has any questions on those, we can look through those as well, but this is sort of the foundation of how these are going to be constructed, and so it's important that that information is available to the group.

We also have a tab in place for this on the webtool, and this will allow you, if you click on the Habitat tab, and you'll be able to go through the various habitat layers and see how they are spaced out on the maps. The example I've got up here is the hardbottom layer, and some things to note is what then we do for this methodology is we take our habitat characterizations, and then we add that and meld that with what we know about the species life

history, by life stage.

For example, we'll take our habitat characterizations, and we'll take something -- For example, gag grouper is what we've got on the right there, for each of those life stages, eggs through spawning adult, and we go through the literature, the primary literature, the gray literature, and we look at any habitat studies, to get sort of these association tables that are constructed, and that will let you know what ecoregion, what habitat zone, and any kind of habitat type. We then clip all those layers together, to get our descriptions for EFH, and so that's how it's currently done.

We have done all of these, and so it comes out to about 260 maps, 259 maps, to put all of these on here and be able to toggle through and do all the comparisons for each, and so, if you were to click on that EFH tab, that's what you would see listed out above, and you would see all the various species, and you can click on those. The management alternative, right now, we just have 2 and 3 available, and then those life stages as well, and so we've got that listed out, and so you can begin to toggle through and do some comparison, not only within species and life stage, but across species, if you were interested in looking at that as well.

Some examples where this seems to work nicely is for red grouper adults. Right now, they're defined -- Their EFH is described as Ecoregions 1, 2, 3, and 4, nearshore and offshore, hardbottom and reef habitat, and so you get a map that looks something like this, which is likely plausible for something like adult red grouper, and so, for some of these, the examples work fairly well. However, we do run into some issues. Mr. Chair, I can take questions.

DR. PATTERSON: So I was toggling through a few of the species, and red grouper is a good example, if you could maybe go back to that slide, and so, as we're looking at this, do we interpret then -- Where we don't see that sort of pink colors, those are areas which would not be red grouper EFH?

DR. HOLLENSEAD: Right. What it's doing is it's taking Ecoregions 1, 2, 3, and 4, and it's taking those areas that are nearshore and offshore, and so not estuarine, that have hardbottom and reef, and so you're saying any reef and hardbottom that are offshore and nearshore is what we would use as a description for red grouper.

DR. PATTERSON: So, for this species, you have the whole area of the Middle Grounds, which has really expansive hardbottom, and red grouper are there, and they don't show up on this map.

DR. HOLLENSEAD: So one of the things to keep in mind is certainly the EFH -- In doing these maps, in doing this exercise, we recognize that it's not going to encapsulate probably all of the areas in which there are adult red grouper. The agency can, you know, request EFH consultations on any project that they deem -- That they would like an EFH consultation to be addressed, and so, while this description is available, using the methodology that is currently being used does not keep the agency from initiating an EFH consultation, for example. If you were to do a project, and you put a pin somewhere, and it is not in that pink, that doesn't mean that you don't have to do an EFH consultation.

CHAIRMAN NANCE: John, please.

DR. JOHN FROESCHKE: One of the things that becomes apparent, when you start visualizing these, is that it's obvious that we don't have all of the habitat data in the Gulf that we would like to have in order to do this, and so that's sort of one of the things that we would like, is that, if there are data sources that are available, for example, that have more complete habitat or reef data or something, we would love to work with you to get that, so we could incorporate that into the information going forward.

CHAIRMAN NANCE: As Lisa does this presentation, this is going to be a more interactive presentation than we're used to, and so certainly, as she's going through each of these slides, and she's changing views and things like that, if you have a question, we can certainly entertain those questions, but don't wait until the end, because I think this is going to be -- I want this to be more interactive. Luiz, please.

DR. BARBIERI: Thank you, Mr. Chairman. Lisa, to John's points there, I would imagine that you are talking to the FWRI folks, like Ted Switzer, right, because they have been collecting a lot of -- I mean, not a lot, and it's all relative, right, because there isn't a whole lot out there, and so they've been trying to incorporate some component of habitat mapping and characterization in their regular cruises, but, little by little, it seems to be adding up, and it might help fill in some of these gaps.

DR. HOLLENSEAD: That would be good to know. Certainly, if any SSC member can identify some sources that we can also reach out to, we would happily do that. Like I said, we want to have as comprehensive maps as we possibly can, understanding that things might get missed, but we don't want to do anything -- Miss something just because we overlooked it in doing our data sourcing.

CHAIRMAN NANCE: Will.

DR. PATTERSON: There is also Steve Murawski's group that have been doing -- They have been doing a lot of mapping on the West Florida Shelf as well, but, you know, the Middle Grounds is a well-known area, and it's been included in other EFH documents, and I think the analysis that Ryan and others did a few years ago, mapping out the known habitats in the Gulf -- I mean, that's -- It's not a mystery, and so I'm just -- It was kind of a headscratcher, and I was flipping through some of the reef fish, and I saw where some of the color didn't go, and I thought -- I just wondered like why that could be, whether it was a density of fish, you know, if there's some threshold, but nothing I could see in the Shiny App spoke to that, and so, anyway, that was just kind of puzzling to me, that red grouper live in a lot of places on the West Florida Shelf that don't have pink.

CHAIRMAN NANCE: John.

DR. FROESCHKE: I totally agree, and that's one of the things that we would recommend, is that we need to go through these layer-by-layer, species-by-species, life-stage-by-life-stage, because, the way the EFH is identified and mapped now, everything is a composite, and so you can't see these problems with the data now. They're still there, but you just can't see them, and so that's one of the things that we do want to do, and we're quite certain that there is a lot of data that we could probably gather, and so we're going to try to do it.

The other point though, just for everyone's comfort, I guess, is that the maps, whether it's this map or a different map, the way that the EFH language actually works is that, if that habitat type, for example the hardbottom in the Middle Grounds, that's still EFH. Anywhere that habitat type exists within that ecoregion is EFH, regardless of whether it actually appears on the map, and so the maps are used to assist in things, and they certainly are used, but, in a strict definition of the conservation, it's not the map, and it's the textural definition of relating the ecoregions, the depth zone, the habitat type linkages, which all that is very important, and so I think there's some of those that we could show you that probably need to be revisited as well.

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

DR. GRIFFITH: Thank you, Mr. Chair. I'm just wondering, and is this available to the general public, because I could see some people trying to use if they were like new recreational fishermen, saying, well, I want to target red grouper, and I'll use these maps to find out where they are, and then, like Will was saying,

maybe they wouldn't be there, and maybe they would be somewhere else, and so I just -- Who is using this tool right now, or is it available to the public?

DR. HOLLENSEAD: The version of the tool we have up now is available to the public. You know who uses the tool, who uses -- Generally the Habitat Division does their consultation, and it's a lot of projects like the Army Corps of Engineers and those sorts of things, and it's generally the -- We've heard them called sort of the customer for the EFH descriptions, and so, any kind of offshore project or anything that's going in will require an EFH consultation, and that's who we would imagine being the audience for this, although, certainly, if that scope is larger, that's something that we can think about as we continue developing the tool.

CHAIRMAN NANCE: Dave Chagaris, please.

DR. CHAGARIS: I think -- I mean, this is, obviously, an issue of your predictions are only as good as your maps, and I would definitely encourage you to work with the group at FWRI. I've been working with Ted a little bit, and I think they do have the ability to make some pretty high resolution -- High enough resolution maps for the entire West Florida Shelf for hardbottom.

To your point, and I think heard you correctly, where you said that, just because this area on the map is not EFH, does not mean that it's not essential fish habitat, and it's just not mapped, but the areas that are mapped as EFH are -- I don't think they're representative at all.

For example, you have like late-stage juvenile grouper out on the shelf, and so, when you see something like that, you know, it kind of, you know, hurts the credibility of the whole thing, and so I would be careful about rolling these out at this stage, until we improve those maps and cross-check it with some of the survey folks that actually, you know, know where some of these sites are.

CHAIRMAN NANCE: Lisa, please.

DR. HOLLENSEAD: Yes, that's one of the things that we've talked about doing, certainly like you talked about, like breaking out some of the juvenile, you know early juvenile and late juvenile. I have struggled to find documentation of what that actually means, for what species and that sort of thing, and so perhaps going back to some of our NMFS partners and asking about collapsing some of these things.

You know, like he said, we don't necessarily have the information needed to go to a level of precision that some of this is asking for, and so we would not want to, you know, put out misleading maps, like you have mentioned, although it's interesting that -- You know, to reiterate what John said, to my knowledge, it hasn't been broken out like this before, not visually, where you have this many maps and this many species, and so, you know, it actually really shows that there is a logic flow issue here that we hadn't recognized before, because we hadn't teased out all of these details, and, in the process of building out the tool, we have.

We're looking at every single one of these not as just a summary description or a table. You know, we're actually putting rubber to the road here, and we're seeing that there's a lot of inconsistencies and where things are not covered, and so now -- Whether that needs another literature review, or whether it needs speaking with other agency partners, and I think that's something that we need to sit down with some of the NMFS folks and get at and have, you know, sort of a decision for every single layer.

CHAIRMAN NANCE: Good point. Harry.

MR. BLANCHET: Thank you, Mr. Chairman. I have so many questions about this, and I really wish that I was able to be there.

CHAIRMAN NANCE: We wish you were here.

MR. BLANCHET: One of the things that I did not see referenced was a lot of the Deepwater Horizon NRDA work. There was an awful lot of mapping and information collected during that whole process, for things like oyster habitats in Louisiana, current wetlands, or marsh habitats, stuff like that, and you might do better, because, what I saw in Louisiana, it looked like most of the oyster habitat was some of the mapped public reef, and not all of that.

I was really kind of -- I didn't quite know, you know, how to get more of that, and the marsh habitat -- There was no marsh habitat shown in places like the Mississippi River Delta, and there was a lot more marsh habitat in some parts of the Barataria system than there currently exists, and so I guess the question is at what point in time was that, or is that, map intended for, because marsh in Louisiana is a pretty dynamic thing, but I did have one thing that has not yet been discussed about, and that is, if you look at the EFH, there is a life stage selection, and there is an adult 50, adult 75, and adult 95 KDE that I'm not quite sure I understand what that is, and it's talking about Alternatives 2 and 3.

DR. HOLLENSEAD: The KDE you see is going to be for Alternative 3.

When we get a little later in the talk, I'll get to that portion and, if I go to explain that, and you still have any other questions, feel free to raise your hand, and I'll address anything that you have about that.

Then you were asking about the marsh in and around Louisiana, and the data layer we have for that -- I would be curious to hear what you think about this, but that was published in 2011, and so I imagine it's from that time, in and about there, and does that description of the marsh sort of match what you would say would be marsh in and around Louisiana at that timeframe?

MR. BLANCHET: No. No. A lot of that marsh -- What is painted in there is probably more of what was there in the 1980s, and a lot -- So if you look at some of the area in Terrebonne, there is a significant amount of marsh north of where is painted marsh that actually is marsh, and I don't know why it wouldn't be, and so I think that that's -- It may have been a map that was published in 2011, but it was not the marsh that was there in 2011, and I'll put it that way.

DR. HOLLENSEAD: That data layer also took in some historical survey information. One of the things that I have found that has been interesting with this is, you know, some of these data layers, the habitat information, goes back to the 1970s, and so it's included, and it may not be, you know, germane to what we're looking at today, and so now it does look like some of those habitat layers you can sort of go through the attribute tables on those and select what polygons you want to display, and that's something we could further investigate.

Again, the interesting thing about this exercise is it really made us, you know, realize that we have to dive a little bit deeper than what we had initially thought, and so perhaps that's why you're seeing that there. This data layer was also sort of a global investigation of some of these habitat types, and so, whereas it might have had a nice expanse, in terms of the study, likely some things were missed, on regional levels.

MR. BLANCHET: I think that, certainly in terms of the northern Gulf of Mexico, there's been an awful lot of survey work done as part of that Deepwater Horizon work, and that could probably be very useful in a lot of these estuarine nearshore habitats, and I will reserve my comments for later on the other options. Thank you.

CHAIRMAN NANCE: Thank you. Steven, please.

DR. SAUL: Thank you, Mr. Chair, and thank you, Lisa, for the presentation. I have one statement and then a question. I think there's a real need for -- I don't know how this would be possible, or through what mechanism, but, from the discussion, and from the discussions, I've had in the past about mapping efforts, there seems to be a real need for folks to -- For the folks who are involved in all of these efforts to sort of all get together in one place at one time to sort of compare notes and sort of see what datasets are available currently, what past datasets are available, and so I think that would be something that would be super useful, I think, because we all, myself included, just kind of have these projects going on, or are doing species distribution work, or habitat-type mapping, but we're all using kind of our own datasets, or ones that we got from other folks, and I think pooling a lot of this information together in one sort of repository would be really, really useful.

Then kind of a question I had for you, Lisa, was sort of defining essential fish habitat versus kind of where a species lives, and does the definition of essential fish habitat -- Does that have to include essentially every piece of real estate or type of habitat where you do find that species, or is it just sort of the most probable habitat, let's say, or the habitat that the species, you know, prefers the most?

Similar to other folks, I see some sort of gaps on some of these maps, where, you know, we do have sort of some information, even from the fishing industry, that does show that this species exists in those spots. Thanks.

DR. HOLLENSEAD: To answer your question, I would be -- You know, if it's seagrass, it would be all available seagrass, but, of course, we know that not all seagrass areas are equally the same, right, and this takes in no physiochemical environmental variables, and we're not looking at temperature or salinity in any of these things, when we talk about this, and, in the past, that has led to maybe an overestimation of the description for EFH, and so you get areas that, you know, are perhaps overestimates.

Then, just to get into it a little bit, that EFH definition that's in Magnuson, that is almost like a legal definition for it, and then I think we have -- You know, you just can't help it, but, just as scientists, we sort of deviate from that a little bit, you know, when we think about what we read in the primary literature, and so that's another thing that we're trying to thread here, in terms of, you know, what has been defined in a legislative piece of law and then to then meld that with our knowledge of the biology and the environment.

CHAIRMAN NANCE: John, please.

DR. FROESCHKE: Just a brief follow-up, and a little bit more on your initial question about does it have to encompass, I guess, the distribution, the known distribution, and the answer is, no, it doesn't, although the kernel density, if you were to look at some of those, and, as you approach 100 percent, you essentially would draw a polygon that encompasses all of the distribution point data that you have, but there is a lot of flexibility, perhaps, on how that could be done, which is something, as we continue to improve the data, that we'll probably be coming back for some guidance.

CHAIRMAN NANCE: Thank you. Josh, please.

DR. KILBORN: Thank you, Mr. Chair, and thank you, Lisa, for the presentation. My question is basically the same as what Steven was saying with regard to the essential fish habitat, and so I just want to make sure that I understand correctly that what is being visualized as essential fish habitat is not necessarily the habitat that is disproportionately affecting the overall productivity or health of the stock, but it's just a place where they are likely to be located at that particular stage of their life, given what we know about their presence on those habitats, and is that correct?

DR. HOLLENSEAD: Yes, and part of it is that we're just really data limited, and sometimes we just have, like we said, some of the literature of some habitat association papers that we can use to say this is where perhaps they are highly probable. Within that EFH description, there are certain levels, based on the amount of data that you have, with the highest most being able to say something, like you just mentioned, about the productivity, perhaps linkages between, you know, life stages, and we just don't have that level of data, and so we mostly just have, you know, here's what we've looked through, has been published, in terms of, you know, where the species are located, and here's our habitat maps to indicate such, that this is probable of where you would find this life stage and this species.

DR. KILBORN: So I could effectively remove the word "essential" and understand what's being --

CHAIRMAN NANCE: John, to that point?

DR. FROESCHKE: That's one alternative, and so Lisa mentioned that I think there are four levels of habitat information, Level 1 being

presence/absence information of the species, all the way to Level 4 being essentially density-dependent productivity estimates of that species, and I think 2 and 3 -- I forget what they are, but, essentially, for the purposes of what has been done, meaning not what we did today, but what is currently defined in previous amendments, and essentially for this work, is Level 1 information.

I think the rule of thumb for the information on those linkages is, if it's present, or common, it would be considered as part of the linkages, and so the linkages being it would be within -- If it's known to be present, or common, within an ecoregion, and then within an ecoregion within the depth zone, and then we know the habitat-type associations, for example seagrass, and so it was Ecoregion 1, offshore zone --

Seagrass wouldn't make sense offshore, but reef, for example, and then the way it's structured now is just a simple sub-setting exercise, and so you would take the map, and you would reduce it to Ecoregion 1, and then you would reduce it to offshore, and then you would map the hardbottom habitat, or reef habitat, within there, and, whatever happens to be there, that would be how it would be represented as EFH for that species.

If you're missing an ecoregion that it actually occurs in, it's going to be wrong in that way. If it's in the wrong depth zone, or you're missing a depth zone, it's going to be wrong in that way. If you don't have a full map of all the habitat that you're mapped to, it's going to be missing that. If you're missing a habitat which they're common in, that's the point, and so each of those are going to need to be examined, and so what we were seeing here before, because everything was just stacked on top -- So the way that EFH -- For example, reef fish is just a composite of all the life stages of every species, and so add it all together and it's essentially the entire Gulf EEZ.

It doesn't allow you to identify any of these problems, and so everything that you see here today -- All of this is all on the books. Like the linkages of habitat and ecosystem, we haven't changed any of those things, and so we just didn't see them, because they weren't there, and so now we're seeing them, and so we're going to need to go through and get the expertise, whether it be the habitat or some of these other parts of it, piece-by-piece, and come back with probably some recommendations of what we think should be modified, and, once we get the habitat data better, this is what it might look like.

Then there would be some policy choices regarding the discussion of is it better to make it a broad footprint of close to the

distribution, or do you want something that is more refined, and Lisa has some examples of this, and what you can see is, the way that it currently kind of pans out, how much you, quote, unquote, know, in a relative sense, about a stock refines what the EFH looks like. When you know a little, you've got a big -- When you know more, you get less, and that may or may not be desirable, and so that's up for discussion.

CHAIRMAN NANCE: John, please.

MR. MARESKA: I guess I just had a suggestion about an additional layer under essential fish habitat, and it talks about the water, but most of the habitat here are physical structures and not the water, and so have you all considered about adding layers like chlorophyll-a, as it relates to primary production for, you know, survival of eggs and larvae, early stages, or even pH, as it may relate to -- I know we're talking about reef fish, but maybe corals for essential fish habitat.

DR. HOLLENSEAD: Currently, this alternative wouldn't account for that. Instead, it just says water column associated, and that language does not get to what you were talking about. We do have an Alternative 4, using a boosted regression tree method that we've talked about, that would incorporate some of those other environmental covariates that you just mentioned into that, and that is one of the ideals.

Like that's what I would think would get you to that EFH Level 4, talking about some functionality of the habitat and how that, you know, results in perhaps densities of fish, something like that, whatever your variable is. The downside to that is we only have that for a few of our managed species, but, for right now, at least just for Alternative 2, it would not incorporate what you just mentioned.

CHAIRMAN NANCE: John, please.

DR. FROESCHKE: The other thing to think about is, the way this is done, and keep in mind that the way that these are done now, with ecoregions and zones and linkages, it wouldn't have to be that way, and so there could be something else, another scheme, that's developed, but, the way it is now, for example, chlorophyll-a isn't part of a linkage, and so there wouldn't be a way for us to relay it to a map, as this is currently structured.

The other thing, what has been done in the past, and, for example, with sargassum, is things that are dynamic, either in time or space, haven't been mapped in that way, and so they aren't included

in a mapped linkage of it, and so, for example, sargassum is EFH for some species and life stages, and so, in theory, wherever it happened to be at some moment in time would be EFH for that species and life stage, although, because it moves around, we don't have -- There's not a map of that.

CHAIRMAN NANCE: Paul.

DR. MICKLE: Lisa, I'm enjoying it so far, and she's only halfway through, right, guys? Then I'll be brief. To help maybe -- You probably already thought of this, with datasets, but I'm trying to help you, and BOEM has some amazing datasets, and you probably have already captured them, and GCOOS, of course, and then the private oil and gas industry, and that data is very proprietary, but I've had success, in the past, in certain areas. When they get old enough, they don't become as valuable to the private industries, and they're more reticent to open them up and allow them, but I have one more question, but I will save it until the end. Thank you.

CHAIRMAN NANCE: Okay. Thank you, Paul. Lisa.

DR. HOLLENSEAD: Thanks for that info, because that would be something like hardbottom, that you don't necessarily think to be so dynamic, and it would be nice to have some of those maps. Am I up?

CHAIRMAN NANCE: Yes. Go ahead and continue. Thank you.

DR. HOLLENSEAD: All right. Going into a little bit about what John was speaking about, some of these habitat types we don't have maps for, and so we mentioned the sort of dynamic nature of the drifting algae, and we don't have that for our static maps, as well as the water-column-associated, and, you know, that just ends up becoming, you know, just sort of a water feature that we can't map, and, for whatever reason, banks and shoals -- We just don't have that, and I don't know if there was a determination to incorporate that with some of the shelf layers that we have, and I'm not sure what decision was made in the past that those weren't included.

How does this affect our characterizations of EFH for species? Like John was talking about, for example, currently, the habitat characterization for gray triggerfish early juvenile is to say Ecoregions 1 through 5, mangrove and drifting algae, and, well, since we don't have a map of drifting algae, that EFH map for that species and life stage just becomes that mangrove habitat layer, which you know is going to be misleading if somebody just pulls up

that map.

What do we do about perhaps illustrating that, to get that point across, even though we don't have that spatial layer there available, and so that's one of the questions that we sort of thought about, and so it sort of looks good on paper, but then you actually take that exact combination of species and life stage and try to map it out, and it just sort of doesn't make sense, visually.

We had a sub-group of the IPT sort of look at an initial stage of this webtool, and so they took it for a bit of a test drive, to see what elements of it they liked or saw improvements, and one of the things that they had mentioned is that -- When we had presented it to them, we had a breakout of sand and softbottom, and they mentioned that it might be a good idea to combine those layers. It could potentially cause for some confusion and these sorts of things, and so we went on ahead and combined that for this data tool.

It sounds like, perhaps, that's something that could be workable, you know, collapsing some of these habitat types, and, in going through this exercise, you know, we identified that perhaps that same rationale could be applied to the hardbottom and reef, and, so, currently, the layer that we use comes mostly from FWC, looking at the hardbottom and reef, and its attribute table includes all of those. It includes all the hardbottom, as well as the coral reef.

I'm not sure but at one point it was split out, such that you have a hardbottom characterization and then you have a reef characterization, which is just coral reef, and so, when that occurs, you get some interesting outputs, and so, for example, this is gray triggerfish again, the late juvenile, and it's got that Ecoregion 1 through 5, nearshore and offshore, drifting algae, which we don't have, and so, therefore, since we don't have any information, spatially, for drifting algae, you end up using nearshore and offshore habitat and then mangrove and reef, and so you get this really expansive area for description for EFH for the gray trigger late juvenile.

However, when you go to gray triggerfish adults, it's still got Ecoregions 1 through 5, and then it says your nearshore and offshore reef, and then it ends up basically being the Flower Garden Banks and parts of the Tortugas and the Keys, and that is likely, you know, an inaccurate description of EFH, and so, when you follow this sort of systematic process that has been used in the past, and then you map all of these out individually, you start to see that some of these things just really don't make sense and

that they need to be revisited.

Perhaps the logic flow needs to be revisited, or the literature, or the data sources, or collapsing of some of the characteristic habitats. For example, if hardbottom was included in here, you might get something that certainly looks better than the description that is visualized when you go through the process, as we have for the other species and life stages.

We do have the metadata available for some of these habitat layers. Certainly, any other data layers that we include, we'll make sure to get all of that, so that we have sort of the necessary information with which to begin to process how those would look. Not all of those habitat characterizations have those spatial layers, and perhaps combining some layers could be useful.

Then, getting back to what John had mentioned, you know, this logic flow results and broader EFH descriptions when less is known, and likely underestimated descriptions when only some data is available, and so, instead of almost working like there is no EFH and then, as we know something, we build something out, it's more, well, I don't know what this is, and so it will just sort of be encompassed as EFH, because I just don't know that much about it, and it's almost working, perhaps, in a way like, as John said, that it may not be desirable, when you start to look at these maps individually.

Again, as I mentioned, you know, perhaps combining some of these life stages, and, like I said, I don't know of any really good description for each of these, or some documentation that's been provided. Certainly, when you start parsing these out, you get into instance where you just don't have a whole heck of a lot of data, or you get a lot of redundant maps, and so I don't know if it's really necessarily worth pursuing, especially if we're doing five-year reviews for these sorts of things, and it can be a tremendous amount of work.

Some of the next steps is convening the IPT, and perhaps another workgroup with some habitat knowledge, to resolve some of these observations and what should be done. Rework the tool a little bit more and continue to identify these anomalies, and so these were some of the ones that really came out in just sort of putting the tool together, and I'm sure there is others to look through, and work through those resolutions, and I think, like John had mentioned, one of the things that we're going to have to do is sit down and get everybody in the room and talk about these one-by-one.

What I would envision would be nice would be to have some sort of logic flow that would be established that would probably work for many of the layers, or for many of the species in the life stages. However, when there's a deviation from one of those, an explanation as to why. Why was there a deviation from this sort of broader thing that we do, and that that would be documented for each one of these.

One of the things about this is we've got the two other alternatives, looking at the kernel density estimate and the boosted regression tree. Those modeling approaches have assumptions, and they've got diagnostic plots associated with them. This is a qualitative way to look at it, but that type of building that sort of case for these, a rationale, needs to be the same across all the alternatives.

Like I said, some sort of logic flow and, if there was a deviation, why, is what I would envision coming out of sort of that workgroup, and it would be applicable to every single one, and then we could work through it.

The good news about putting all of this together and doing this all sort of tediously is that, if there is an update made, we can do it very quickly, and so the URLs for all of these maps have been constructed, and the webtool can be updated just like that, as soon as the new map is created, and so the functionality of it is much more than what we've had in the past as well, and so it was nice kind of putting in a little bit of this work on the frontend, to identify some of these issues, but then we hope they would sort of launch off into the future, to be able to use this tool and make it a little bit more timely, as things are updated.

Is there any questions, in general, about that Alternative 2, before I jump into the Alternative 3 section? I know there's probably some thought processes on moving forward, but, before I leave that and jump into the other, is there any other questions?

CHAIRMAN NANCE: I don't see any, Lisa. Go ahead.

DR. HOLLENSEAD: Okay. Getting into the Alternative 3, this is going to look at some presence only, and so this says, you know, perhaps we don't have the habitat linkages that we would like, or the maps aren't as comprehensive as we would like, but we do know something about the occurrence of the critter that we're interested in, and so the kernel density estimation would allow for characterization of the EFH, using that type of approach, and so what it would say is we would look at your survey of fish, and it would draw these isopleths around a 50 percent occurrence, which,

in the literature for looking at sort of these home-range tools and things, would be assigned sort of a core area, a core area of fish.

Then, as you move out to 75 percent and 95 percent, you're getting the large extent of the distribution, and so it gives, you know, sort of an area of core occurrence, as well as a larger conservative distribution, and so that is what those other indicators are at the bottom, that adult 50, 75, 95 KDE.

That is a couple of species that we've got some -- As an example that we've got up on the web layer now, and so you can click on Alternative 3, whatever species that you want, and, right now, it's just for gag grouper, red grouper, and red snapper, and you click on Alternative 3 and then also toggle between those isopleths to get the output for those kernel density estimators.

What you see is something like this, when you put them all together. Like I said, aesthetically, we're trying to work on the colors, so it doesn't look like somebody ate too much cotton candy and got sick all over the West Florida Shelf, but you would see that larger kind of green is going to be the larger extent, that 95 percent kernel density estimate, and then those core areas is going to be that pink color for adult gag, and so you get these ideas of concentrations of animals, as well as larger extents.

This says, hey, I recognize that I don't know a whole lot about the linkages, but I know something about where the animal is, and so I'm going to use that to inform my characterization of EFH, and so we've got a couple of examples of those on the map as well to sort of toggle through, but we're also working on getting that fourth alternative, the boosted regression tree, on there as well, the idea being that then you could start to do some comparisons of what the alternative looks like, as opposed to Alternative 3.

Alternative 2 is in the upper-left for adult gag grouper, which says, you know, Ecoregions 1 through 5, and the nearshore and offshore hardbottom and reef, and that's as opposed to the kernel density estimate output for adult gag grouper, and so you get pretty different things.

CHAIRMAN NANCE: Thank you. Josh, please.

DR. KILBORN: Thank you. I was wondering if you maybe elaborate a little bit on why those two images are so wildly different.

CHAIRMAN NANCE: John, please.

DR. FROESCHKE: I will take a swing at it. The one in the upper-left, Alternative 2, remember is based on the linkages, which, for example, and the ecoregions, and so, if the Ecoregions 4 and 5 say, for example, off the western Gulf are not appropriate, you wouldn't see those parts.

The parts that we've identified on that, the hardbottom is underrepresented, and so that's sort of one issue there, and the -- Alternatively, the one on the bottom-right is based on actual observations of the animals and nothing about the distribution of the habitat, and so, for example, this one -- I don't think these data, in this case, are what's happening, but, if you were to have only sampled in the eastern Gulf, you could see something like this.

I don't think that's the issue in this case, but the overwhelming majority of gag occur in the eastern Gulf, and so, in this case, I actually think the KDE is likely a better representation of EFH, but it does show you, on these linkages and the habitat, that there's some issues that need to be addressed.

DR. HOLLENSEAD: One other thing that I would point out is one of the goals that we have for the tool -- As John had mentioned, this data comes from the Gruss paper that's available in the meeting materials.

We have the locational positions for the survey sites, and so we have the areas where, you know, a sample was taken, and adult gag grouper was encountered, and then ones where they weren't, and so we're also looking to be able to put those on the webtool, so that you could begin to interpret do they only sample in the eastern Gulf, or this is just where they caught -- You know, how expansive was the survey, and so we certainly want to be able to put up that information as well, and so that will be forthcoming.

CHAIRMAN NANCE: Thank you. Any other questions to this point? Okay, Lisa.

DR. HOLLENSEAD: In looking for the data that we have available -- Right now, what we have in the tool isn't reflective of all the information that we have, and so you can see, on the top row there, it's got the life stages, and in the rows are the species that we have these data available, and so we can do Alternative 3 for these species and life stages, and so that's also something that we will end up adding to the tool, is the whole sort of suite of information that we have.

CHAIRMAN NANCE: Benny, please.

DR. GALLAWAY: These ones that you show, you're going to do, or you have done these?

DR. HOLLENSEAD: So we've done them, but we just haven't put them on the tool yet, and so all of the kernel density estimation output has been done. All of those models have been run, but it's just a matter of getting them out on the tool. We're currently having an issue where the isopleths, when they draw, they're not drawing like as you would want to see 50 and 75 behind that, and 95, and so we're working out some of those bugs. Once we get that handled, we will put those things on there.

DR. FROESCHKE: Lisa, I thought we had all of these. Do we not?

DR. HOLLENSEAD: We do have them, but we didn't put them on the tool yet. I told you, but it's a -- Like I said, we still haven't you know, worked through toggling some of those things out, and so, once we get those, we'll get it up. I didn't mean to throw you out there on the record, but you left me no choice.

DR. FROESCHKE: I thought I did it.

DR. HOLLENSEAD: Okay. Again, talking about some next steps for those other alternatives, you know, add that presence and absence layer for the species locational data, so that those can be seen, and develop a spatial layer for those boosted regression tree methods, and I have an extra slide where we can get a preview of that, so you can really see -- Get a sneak preview of what that is, if we've got some time after we go through some of the initial discussions.

Then, you know, sort of review these results with the IPT, as well as perhaps, you know, convene some working group to look at these layers, especially for Alternative 2. I will say, thinking about some of the next steps as well, you know, the council is certainly open and wants to explore using Alternative 2. I think, for a lot of the species, this is the information that we have, and they would like more contemporary data sources for these things, which makes sense.

However, like I said, I think we need to go through and better look through those and look through those linkages, and so I certainly want to bring before the council some better information that the SSC has -- That a workgroup has perhaps put together and the SSC has reviewed, so they will feel more confident moving forward with that determination.

Another thing we would like to do is, along with that habitat layer, is to upload the metadata, and so that would all be in one place, and so, right now, like in the meeting materials, you have the metadata, and then you have to look at the maps, and so we would want to put that all in one place, so that we would have access to that in real time.

Looking at including the habitat association tables for Alternative 2. Right now, the map just pops up, and you're looking at it like why the heck is that the way that it is, and so that you can see why it's characterized that way, and then be like, well, why the heck is it that way, and so then that introduces some more interesting questions.

You know, add a tab that provides a project overview and links to some of the council documents as well, and so have it all just be a one-stop-shop tool, and then present that finalized tool with all of the alternatives to the SSC as well as the council, and here is -- If everybody is ready for it, here is sort of the bonus slide, looking at sort of the boosted regression tree output for adult gag, and so I don't know, John, if you wanted to sort of walk through this one.

This one is a -- We're going to have to think of a better way to present this, because it's actually sort of alternative from what you would get for Alternative 3 and the kernel density output, and so, John, if you wouldn't mind.

DR. FROESCHKE: I wouldn't mind, but I think what would be better is to put up the website, so that you could step through the layers step-by-step.

DR. HOLLENSEAD: Okay. Work through the webtool?

DR. FROESCHKE: Just this -- Not the webtool, but this one page. I can send it to Jess, if she doesn't have it. Stand by.

DR. HOLLENSEAD: Okay. John has been working on -- This boosted regression tree, to just remind you all, is it's basically almost like a clustering, or sort of decision, where it moves through and you have these determination points, for example, and this will take into account what you were mentioning of salinity, and I believe pH is in there, and there's quite a few environmental covariates that go into looking at presence and absence data of the animal in question, in this case adult gag grouper.

Then it sort of moves through this hierarchical framework of saying, okay, it appears that salinity is the most important, but

at what breaking point, you know, of salinity do we start to see -- We know that presence is a big deal, and absence is not, at this demarcation, and it says, okay, that's the case for salinity, and then it looks for the next-best explanatory variable, like temperature, you know, and then it moves through that way, in sort of this hierarchical system. What you get is you get this output of probability, and so it will let you know, you know, probability of output.

CHAIRMAN NANCE: Let me ask you this, and maybe I'm reading this wrong. I see colors there, but I don't see any legend for those colors.

DR. HOLLENSEAD: So that is going to be -- It would come out, and it would be sort of a scaled color regime based on the probability.

DR. FROESCHKE: Now that I'm at the keyboard, let's make some motions, and let me see what I can do here. I kind of put this together, and the reason this is not on the app yet is that big polygon layer needs to be -- I've got to figure out how to make that work on there, but I haven't done that yet.

Okay, and so I just kind of wanted to step through, and, again, this is based on fishery-independent and dependent data from the literature, and so it's based on sampling data, and so, for example, for gag, the yellow points illustrate positive samples, and so start there, and then this larger -- So this red color illustrates the spatial extent of the positive and negative samples, and so that's the information that informs what I will call the model.

I'm going to turn those off for now, and so the model -- We used a boosted regression tree, which is essentially fancy multiple regression type of model that incorporates the presence-absence information of the animal as well as the spatial distribution of the habitat type or any covariates, and so it's really just a regression model, and, once you have mapped, rasterized versions of the covariates, you can make predictions, and this also -- You can include all kinds of non-habitat, and so, for example, these data included different gears, and so you can account for the selectivity differences in the gears and all that.

There's a whole bunch of stuff in there, and we could take a deeper dive into it, but, anyway, when you do, what you get is an output, a gridded output, like this, and the colors range from yellow, meaning a higher probability of occurrence in the cell, to the purple, and the gray indicates that it wasn't sampled, and so what you see here, to me, is a fairly good rendition of what you would

expect for the frequency of occurrence of distribution of gag off the West Florida Shelf, where it's predicted to occur, in sort of that hardbottom range up there in the Panhandle and then some of the, perhaps, reef type off of Texas.

That seems to match what you might expect, intuitively. However, in the framework, well, how would translate that to a management alternative, because you can't just put a heatmap up and say, well, that's EFH, and so that's where the decision-making comes in, if you will, and this could be part of a larger discussion, but, for the purposes of visualization, what I did, in this example, is I took all of the predicted probability, and so each cell, and each cell has a unique predicted probability of occurrence, and you generate a histogram of those, and then you can calculate quantiles.

For example, this plot would be the top 50 percent of the quantiles, of the histograms, and so everything to the right of the median, and so it generates this sort of yellow thing, and so you get a fairly, you know, haphazard, if you will, and it encompasses most of the idea, but I will turn it off here, so you can see it. It may or may not be useful, and I would tend -- My interpretation of that is it's not particularly useful.

The 95, you get more of a refined reduced area approach, but it does overlay these areas that are in yellow, and it kind of identifies the potential of something like this, with the caveat that, if you wanted to go down this approach, there would be some additional vetting of both the data, some determinations of how you would classify thresholds, and then what you would want to do with it, but it is possible. Do you have a motion? I'm ready to type.

CHAIRMAN NANCE: Will, please.

DR. PATTERSON: I'm not sure we're quite there yet, and so, in this particular output, the blue versus purple, what is that? You said the purple means that it wasn't sampled, and what is that -- Not the lighter kind of greenish-blue, but like out there in the middle of the Gulf of Mexico, and there's some blue that shows up there, and then a little bit of green, and what are those colors telling us?

DR. FROESCHKE: So they're just -- It's a predicated probability, based on likely there is some hardbottom habitat that was at least included in the rasterized grid prediction, and it's not necessarily telling you, but, if you look on the Z scale, on that bottom-left there, it just gives you a probability of -- A

predicted probability of occurrence for each grid cell.

DR. PATTERSON: Okay, and so, in the bottom left, that's telling us -- So you're saying that, out there in the middle of the Gulf, in about 4,000 meters of water, we have some probability of encountering adult gag?

DR. FROESCHKE: I'm saying there's a chance, and that's why looking at the quantiles I think is a more meaningful abstraction of that, for the purposes of management, and noting that, again, that's based on rasterized versions of your habitat, and so you're making predictions based on that, and so, if that's not -- If you're not happy with that, you're not going to be happy with the result.

DR. PATTERSON: I think these Shiny app tools are incredibly useful. They're user-friendly, and people can get in and do manipulations. You know, we've seen it with the stock assessment simulation side of things that Nathan Vaughan has presented here, an MSE type of analyses, where folks that don't have the quantitative skills can easily get in and manipulate the data layers, and, in the case of his work, you can actually run management strategy evaluations just by using a sliding scale.

To me, it seems like there are three things here though to consider about how useful this is going to be for the EFH application. One is, is it user-friendly, is it easy to access, and that seems to be apparent. The second is you have these different approaches to estimating the map distributions, and, you know, they have to be carefully considered and vetted, and then the third is the data inputs, and this is an example, and, I mean, I can't, from just looking at this, infer whether this is a model issue or is it a data issue, because gag don't like in places that are showing up on this map, and they do live in places that aren't showing up on this map.

DR. FROESCHKE: Yes, and, to answer that, I think I would have to go back to the model and look at the diagnostics and things, and those information are available, and certainly are worth doing, but, yes, I agree. From this, you can't tell where the issue is, but I agree that that's unrealistic in some of those.

CHAIRMAN NANCE: Any other -- Lisa, please.

DR. HOLLENSEAD: Maybe getting to what you were saying there and talking about before -- Like in a more simplistic version of it for like Alternative 2 is this idea that you would have, for lack of a better chance, this qualitative model that says, okay, you know, we've read, for here, that this is where habitat may have

high -- I guess what I'm trying to get at this idea that we treat these sort of the same way as I think of as standardized throughout, this idea that you would have your model, and you would construct it, and then you look at it, each individually, and maybe --

We had talked about just doing this for Alternative 2, but maybe we go through Alternative 3 and 4 as well, and we have an output that looks something like this, and then we have a discussion about, okay, this is what the model is telling us, but certainly we've got something -- You know, we've got knowledge of things that says, okay, this is probably not the probability that we would look at, and so we would make some determination and provide some rationale of this is why we're going to leave this section out or, like John said, we're going to use this isopleth at 95 percent, because that contour is more likely what we would get at.

I don't know if it would be a little bit like here's our scientific uncertainty and here's our management uncertainty, that we would almost sort of break it out into some of those larger decision points, you know, if the group thought that it would be worthwhile to pursue something like that, for example, but I don't disagree with --

CHAIRMAN NANCE: John, let me ask you something. The last two, the yellow and the red, are actual data, and so, just using those -- None of that other stuff is even in there, the stuff that's all being questioned by others, and so I guess that's a real problem, because that other stuff seems to be made up, on these real deep, deep areas of the Gulf.

DR. FROESCHKE: Yes, I agree with you, and that's kind of why I was just putting these up there, and what I was going to say -- I've thought a little bit more about your question, and all of those areas are well outside of the sampled area, which making predictions outside of the scope of where you've sampled is not really a best practice, and so, in this case, what I would probably do is we would generate a reduced polygon to clip the data to the area that we've actually sampled, but, for illustrative purposes, for this -- You know, if we were to do this across different stocks and things, we kind of needed the Gulf-wide raster, but, yes, I agree with you on that one.

CHAIRMAN NANCE: Okay. Luiz, did you have a --

DR. BARBIERI: Well, John, just to clarify, and I guess it's kind of obvious, and so this is sort of an inference, right, of what should be there, given sort of like a habitat-suitability-model-

type approach, right?

DR. FROESCHKE: Yes, it's habitat-suitability modeling approach. There are other ways that it could be done, with generalized linear models or GAMs or neural nets or random forest, like that was done with the Great Red Snapper Count, and all of those are similar kinds of things, and, really, in my view, are more related to personal expertise. I know more about this one, and so it's easier for me to get something that seems quantitative reasonable in a short order than advocating that this is the absolute best way to go in all cases.

CHAIRMAN NANCE: Jim Tolan, please.

DR. TOLAN: Thank you, Mr. Chairman. The point that I want to bring up is more of a way forward for this tool, and you've already both done a really good job of addressing the biggest question I had, was how are you making static maps of these dynamic habitats, especially the sargassum, because that one just jumped out at me, and, even in the context of really rapid updating, like you mentioned, and you can do this really quickly, and I know, within the last decade or so, there's been a dramatic shift in the Gulf in where sargassum ends up.

We don't even get it on the Texas coast anymore, and, I mean, there used to be just piles and piles and piles of it, and now we don't get hardly any at all, and that's got a real big connection for a lot of different species in the larval and juvenile stages, and I'm just wondering what data source you're envisioning to capture some of these more dynamic habitats that are really important as essential fish habitat, because that one giant polygon that encompasses the entire Gulf of Mexico you could say might have been okay for sargassum at one point, but I would argue against that now, and it's just not -- It doesn't end up. Thank you.

DR. FROESCHKE: That's a good point, and, I mean, there are a number of folks from Mississippi and other things, for example, that have mapped, or are mapping, sargassum, and, for whatever reason, we just never quite linked up to get their output in a way that we've used it, and that's not necessarily a ding on them, but we just haven't completed that cycle, but it could be done.

The thing that I find interesting about that is, if you were to use a model-based approach like this, you could then start making predictions about, well, if the sargassum distribution changed in time, in some way, you could then make a different model-based prediction and say, well, this is what my EFH would look like, versus what it is now, and you could build that into MSEs, or

management buffers, and all kinds of things, and so, if you understood that, it would open up a lot of possibilities.

CHAIRMAN NANCE: John, please.

MR. MARESKA: It seems like maybe some of those environmental covariates are driving what's happening out there in the central Gulf, and is there a way like for the adult fish that you could put like a depth limiter on there, and that would clean that up?

DR. FROESCHKE: Yes, and that's what I would do, is we have -- I mean, you could look at the raw data, and I have it, and I could look at the range of depths sampled, if it's from ten to forty meters or something, and I would just carve out the swath of that, and that's the geographic footprint of my data, and not make predictions outside of that in space, and I think that would be the next thing to do.

CHAIRMAN NANCE: Josh Kilborn, please.

DR. KILBORN: Thank you. The previous commenter just mentioned what I was going to talk about, which is the environmental covariates I think, in the central Gulf, are probably what's causing the problem, but I'm just curious, and do you know, off the top of your head, approximately what the final model looked like? Like what is actually being prioritized in this model? Is it temperature or salinity or depth or just presence/absence? Like do you have any sense of that, and, if you don't, it's no big deal, but I'm just curious if you know if there was something that the model picked up that might be causing these discrepancies.

DR. FROESCHKE: I don't know off the top of my head. If you give me a minute, I will try and dig it up.

DR. KILBORN: No worries. Thank you.

CHAIRMAN NANCE: Any other questions or comments for Lisa? What do we want to let the council know? Harry, please.

MR. BLANCHET: Thank you. This goes back to the Alternatives 2 and 3. I was looking at red snapper adult on the Shiny app, and there's a couple of places off of Florida, one kind of north of Clearwater, where there seems to be some mapped hardbottom that shows up as adult red snapper, and the same thing off of Sarasota, and especially that area just north of Marathon in the Keys.

That is a lot shallower than where I would be expecting adult red snapper under Alternative 2, and so was that a case where there

was no -- Basically, it's all nearshore, as well as offshore, because, to me, adults inside of say twenty meters is kind of iffy, and it happens, but, looking at the 50 KDE, I think that might be a stretch, and so is that just a -- Can that be explained? Thank you.

DR. HOLLENSEAD: I think, for Alternative 2, when you were talking about something looks fishy about the areas off of Sarasota and everything for adult red snapper, I think that's being driven by that coral reef layer, is why you might be seeing that, and, again, that would be something that we would have to go back and double-check, looking at some of the literature review, and make sure that's the case, or perhaps it needs to be removed, or a better look into that literature and what made that determination that reef was there, and was that done correctly, or perhaps misinterpreted as something else, and then I'm sorry, but you had another question about the kernel density estimate at 50 for red snapper?

MR. BLANCHET: Yes, and that's essentially what I was looking at, was, you know -- I am looking at trying to look at the 50 KDE adults for Alternatives 2 and 3, and, for Alternative 2, there are -- Which I thought was basically the combination of you needed all of these factors for it to work, and, for adult red snapper, I don't see them in the kind of shallow waters that you would be seeing just north of Marathon, or right offshore of Clearwater, was the point that I was trying to make.

DR. HOLLENSEAD: Okay, and so, just to make sure I'm looking at the same thing -- I've got the red snapper KDE up for the adults, the 50 and the 75 and the 95, and that's potentially -- Unfortuntely, you know, this is one of the things that we've got to make sure that we have the survey, you know presence and absence up there, to make sure that isn't a function of perhaps the survey not capturing that or that, in the data that we have, that they surveyed that area and they didn't see fish, and so that's something we'll have to investigate, and so thanks for bringing that up, and we'll look into that more.

CHAIRMAN NANCE: John.

DR. FROESCHKE: Okay, and so here's just a couple of quick-and-dirty plots, and so I have two things to show you. This is just a -- There's a little bar plot, and it shows the number of covariates included in the model. In this case, at least prior to the model selection, there was a number of those, and one thing, just to show you the gear, the gears used in the sampling makes a big difference, and so, when you account for that -- I modeled

that as like an offset variable, and you account for that in the predictions, so you're not --

If you sample different areas with different gears, that will mask itself as -- It will look like a difference in the observation occurrence, and so that's one thing that you can account for that, and that's why it's in there, and it's by design, and not necessarily an omission, and so I recognize that.

This is a slightly different one, and it's just for the variables that are most influential in this particular model, and it's called a partial dependence plot, and, on the X-axis, and I will just look at bottom depth here, it shows you a couple of different things. One, this 12.4 percent is an approximation of the explained variance of the model, and so there is total variance, and then there is variance explained by the model, and, of that explained variance, 12.4 percent of that explained variance was accounted for by the bottom depth, and so that's kind of how you can look at those.

Then, once you've assessed the magnitude of that, then you can look at, on the Y-axis, how the pattern fits, and so, for example, in this, you can look and see the sampling was, as we discussed, between zero and 200, and I assume that's feet, and I will have to check, and I don't recall, and then, when you get that flat line, there's just no sampling out there, and so that's something that, obviously, you could omit from the model, and this sort of gets you a fit, and so there's sort of a dome-shaped peak there in the middle, and so that's one thing.

One the temperature, the way the observations are, it looks like it's fairly flat, and, as it gets warmer, up in those higher ends, the frequency of occurrence increases.

One thing that is kind of interesting about these kinds of models is, and you don't typically think about it, but this fourth panel on the right there is you can look at influence of years, and so, if there's a reduction in the stock abundance, you can see a reduction in the probability of occurrence had nothing to do with the habitat, per se, but it's just the stock size is smaller, and so you're going to catch lower.

What I've found, through my own work, is that, if you look at these they work pretty dang well for identifying CPUE trends and things, and it always matches up what you would expect through some sort of fishery-independent index of abundance through time or something, through these effects, and so it works out pretty well, and it seems to show, based on these data, that there was a

reduction in abundance through time, and then there's month, and it's not really there, and then DO -- If you look at that, in low DO, you don't find gag too much, at least based on this sampling.

That's sort of how it works, if there's any questions on that, and then there's lots more. There's lots more that you can dig into, just like any model, and there's diagnostics and residuals and the whole bit, and so I will stop there.

CHAIRMAN NANCE: Any other questions, SSC? It looks like, Lisa, on Alternative 2 -- I think your idea to go through layer-by-layer I think is appropriate, and I'm not sure how to get groups together to be able to accomplish that, and that's a -- With over 200 different slides, getting the right people there for every one of those, you're going to need habitat people, and you'll need, you know, people for life history and those types of things, and so, while I think it's good to be able to do that, because it's important to have those looked at, but think about how to do that.

For Alternative 3 and 4, from my perspective, it looks like -- I think we're heading in the right direction, and these are very interesting slides. I think they need to be -- Make sure the limits are bound, so that we're not allowing, you know, grouper and things like that to be out in thousands of feet of water, and so, those things, from a life history standpoint -- To not go any further than what the data is allowing us, or should allow us, to be able to do. Jim.

DR. TOLAN: Thank you, Mr. Chairman, and one other, moving forward, comment, and is there any way to separate out the different species of mangroves, because, really, it's just the red mangrove there's a nice fish association with, but, when you get black mangroves, which is pretty much the western side of the Gulf, there' hardly any fish association with that at all, and using -- I looked at the metadata, and, using that global distribution map, I think it includes all the different major species, and so it might be a little bit misleading when you're looking at those essential fish habitat connections, and so just splitting out the black and the red. Thank you.

CHAIRMAN NANCE: John.

DR. FROESCHKE: I was kind of thinking, as we were going through this, what would be the next steps, and, in my mind, what we may do is reach out to the states and the Science Center and ask to identify a staff person that, as we get our best version of these habitat layers, we could send it out and ask for some sort of review, and, if they have additional data, by all means, and I

think we could probably do better on that.

Once we get what we're happy, internally, with the habitat layers, we can go through some sort of IPT process and perhaps bring it back to you all, if you're interested.

From there, I think, once you have the habitat, then you could begin to look at those linkages, and so there's the ecoregions, the depth zones, and the habitat association linkages, and all of those could then be reviewed, and I think we could internally find a number of those that probably would warrant revisiting, and we could probably -- What I was envisioning is going through them layer-by-layer and saying, yes, based on, you know, our review, these ones look fine, and there's probably a whole bunch of other ones that we could look at an say they don't look so fine, and this is perhaps what we could do, based on the literature or habitat or something like that, and say, you know, this is what we would propose, and what do you think, and move forward like that.

In terms of priorities, one of the things that Lisa and I have -- You know, if you look at the non -- The juveniles, the early juveniles, the late juveniles, those data are highly suspect, and it may not be a good use of our time. I mean, one recommendation -- We've talked, or at least Lisa and I have talked, about collapsing the layers into benthic and pelagic, or non-substrate-associated life stages, where you just have juveniles and adults, something like that, and focus on that.

I don't know what you all think about that as a recommendation, but, to me, having it adult and, for example, spawning adult doesn't make a lot of sense to me, and the definition of "adult" is an organism capable of spawning, and so I'm not really sure how that all worked out, and David Dale is on, and maybe he has some different ideas, and I am just kind of putting that out there, but, in my view, we would work backwards, focusing on the benthic life stages and then work down to the adults, and maybe we could de-prioritize those, at least from the purposes of sending map representation, either because the data would be used to inform the are not good or they rely on dynamic habitat associations that, in the past, we haven't mapped them, and maybe that would be a larger effort.

CHAIRMAN NANCE: It seems like, in the conversations though, there were other entities that may have data that we need to seek out, from a habitat standpoint.

DR. FROESCHKE: Yes, and part of the thing that I think we would need some help, and where it gets a little bit beyond council staff

resources and things, is that, for example, there are maps of high-resolution multibeam bathymetry, or something, for example, but translating that into habitat types that we might use -- Like I don't have the expertise to go and read one of those and translate it into reefs, softbottom, and things, and so, if that -- If the process maps are out there, or if there's ways that we could get that, I think that would be what we're looking for.

CHAIRMAN NANCE: Luiz.

DR. BARBIERI: Thank you, Mr. Chairman, and, John, on that specific point, yes, and, like Dave Chagaris said, I mean, we have, at the institute, people who have been, you know, trying, for the last several years, to work on exactly this, right, and so I'm sure that they will be interested in integrating a lot of experience and knowledge into this process.

My question was what's the timeline for completion of the webtool kind of process, and then what's the plan going forward, right, because it looks like this is one of those things that you're going to always have to continue developing and updating over time, and is that something that can be handled?

DR. FROESCHKE: I think so. I mean, for good or bad, we're kind of in it right now, and so, to the extent that our workload allows -- One challenge for us is that it's typically a lower priority than rebuilding plans and assessments and things, and so, to the extent that we can maintain some momentum on this, I do think that we could make a good amount of progress in a short amount of time.

The challenge that we have is it was a fairly big effort just to get all these maps working, but you have to get the maps working in order to figure out where the problems are, and so now we've got that working, and we've figured out where the problems are, and so we can kind of work on that.

In the meantime, I guess I underestimated how difficult those layers were going to be to get working, and so the functionality and all that stuff was some work, but I can be developing that part, to make it a lot better, while we're doing this other part, but, if we could get the habitat stuff, in my view, I would feel like we're getting closer to over the hump, because, I mean, if you don't have that, you just don't have it, and so I think we'll keep working at it.

CHAIRMAN NANCE: Lisa, please.

DR. HOLLENSEAD: Then, jumping off of what John said, sort of even

further steps past that, past getting the tool working, such that we can identify some of these things and begin speaking about it, the next steps for that would be to begin, you know, really starting to put the amendment together. If we can get a little bit of traction, and for, example, we see everything -- If we get some diagnostics of things, and the SSC, or the council -- You know, if the SSC makes some recommendations, and the council selects some alternatives, but to begin putting that amendment together.

Keep in mind that we also have to put in the requirements of the five-year review, and so I have that sketched out, how that might start to work out, and the IPT would begin, you know, populating those sections and things like that, and then they would be formalized. Then that would sort of demarc the end of that, you know, in terms of just the policy document.

However, you were talking about being able to update things, and, you know, it would be my vision to be able to use this webtool, something like this, such that, when the five-year reviews came around --

I think one of the things that has been a little difficult, and like I can see why this hasn't been updated in twenty years, is, you know, this idea that, once you get into it, and then it's almost other things take priority, and so it's not -- You know, it's only revisited every five years or things like this, but, if we make it more accessible to people, that some of those five-year reviews could be a little bit more --

You know, so like you had mentioned about the drifting algae in Texas, that this was the case here, but now we're seeing something different, and that it can clip along at a little faster pace, but it does mean putting in sort of the work beforehand and really focusing on that, but I'm hoping that will leapfrog into the future as something that's a lot more dynamic, such that, when the five-year review comes around, instead of having to be like here's this enormous body of work for this or that or the other, it will be, you know, here are the visualizations, and we can get into the more interesting questions, is what I would hope for this.

CHAIRMAN NANCE: I will say this though, Lisa, that this review -- We seem to have moved further than we ever have on any of the other reviews, and I think it's through your time commitment that you have been doing this, and so I appreciate that you've been working on this, and I think, at the end of this, it's going to be an excellent product. Will, please.

DR. PATTERSON: Thank you, Mr. Chair. A tremendous amount of work, obviously, that's gone into this, and all the code that's behind making the Shiny app useful and easy to use. I mean, that's hours and hours and hours and hours of time.

I think it's apparent that you guys have spent a lot of time ironing out the bugs and making that component of it user-friendly, and, as important as that it is, it's not as important as it producing accurate maps, and I think, through the conversations here, and the discussions, there's new things to consider about, you know, maybe data sources, modeling approaches, what have you, to try to produce more accurate maps. I thought I heard, early on, that this was a live platform now, and is that true?

DR. FROESCHKE: It's live. I mean, it's not Google indexed, and it's not up on our council website. I put it up live because I wanted everyone to see it. The way I had it, until just a couple of days ago, is I had it password protected, and so I had a whitelist of people that were -- Lisa and I essentially that were working on it, and so we can pull it back down and work on it, and it doesn't really -- It's not a big deal.

DR. PATTERSON: Okay. I guess I misunderstood that, and I thought that it was more widely used and indexed, and so, if that's the case, then it's not as big of an issue, and I was just going to say that you probably don't want this out there at this stage.

DR. FROESCHKE: Yes, and I was still typing on this on Friday afternoon, and so --

DR. PATTERSON: Okay. Perfect. Thanks.

CHAIRMAN NANCE: Any other comments? Luiz, please.

DR. BARBIERI: Thank you, Mr. Chairman. Since we are kind of wrapping up our thoughts on this, right, I would like to hear from you, and can you give us an idea, like your gut feeling, your general impression, of the usefulness of this approach, now that you've got through it relative to what we had before, right, and so it seems to be imperfect, of course, which we deal with here, before this committee, often, and we see a lot of models that are imperfect, right, and then we wish for a better-informed or produce more accurate or precise estimates, but we have to deal with those realities, right, and so where do you think we are now, having this in hand, relative to what seems to be a really blunt instrument of looking at the Gulf of Mexico as a whole and saying, well, this is EFH for everything, all the managed species, because we know that those species are there?

DR. FROESCHKE: The way that I've always thought about this is that the current approach -- To me, everything is EFH is the same as nothing is EFH, and so, what I envision from something like this, is, once you're done, you could move beyond the comparison of if you -- Like Lisa said, primarily, the customer of this are people who are seeking to do things to the Gulf, modifications or whatever that might be, putting in reefs or platforms or docks and things, and so they go through the EFH consultation.

It seems, to me, if we could move from making recommendations regarding some impact and say, well, it's either EFH or it isn't, you could come to this and say, well, this area is EFH for seven species and three life stages, versus this other area is EFH for one species and life stage that doesn't happen to be particularly sensitive, and so then you would have -- They're both EFH, but then you would have the basis to make a much more informed and nuanced habitat recommendation, and so that's what I would hope to come out of this.

SSC MEMBER: John, following-up on your point there, that's exactly where my mind was, was thinking about the user experience, and, at least from my experience of how these types of projects are planned, there is at least a couple of pathways, and one is where something is going to be done, and it's finding the right place to do it, and so that's more open, spatially, to like minimizing impact and siting aquaculture or wind or something like that, but the other is like a coastal landowner, and they're trying to decide what decision to make in their particular place, and so thinking about, you know, how you would tool this from the mapping approach, and that might be something to think about later, of how you can delineate various places, clicking on the map, and, like you said, having seven species pop-up, or drawing a polygon on the map and saying, you know, can I compare this polygon to the other and it pulling up some information, but having, instead of a species-first pathway to information, having a mapped geographic area first pathway I think could be one of the ways that it could get used.

DR. FROESCHKE: Yes, and all of those are possible, and so, yes, I would welcome that input. Once you kind of get the layers working, then things become -- Because that's what I was hoping, is that, at some point, you could just be able to stack those layers and generate the graphics, if you wanted to have a heatmap of how many different species in particular spots or something, and so thanks.

DR. BARBIERI: By the way, folks, Jim had to step out for a second, and so I'm going to take over here momentarily, and so any other

questions or comments for Lisa and John? Benny.

DR. GALLAWAY: John, your brown and white shrimp, are those based on SEAMAP data, primarily?

DR. FROESCHKE: I believe so, yes.

DR. GALLAWAY: Summer and fall?

DR. FROESCHKE: Yes.

DR. GALLAWAY: It doesn't -- There, I would almost suggest you use fisheries-dependent data, because there are thousands of CPUE values by area and depth for a multitude of years, ten or twelve years, and so I would suggest that you agree with where the fishermen fish for them, and I think that would be a good thing, and you might want to look at that, and that's all I'm saying. I realize it's fishery-dependent, but it's different here.

DR. FROESCHKE: Well, and what we have, at least in the model, is that paper from Arnaud. It's a good paper, and, if you haven't take a look, it's worth your time, and he has a number of those, and they're fishery-dependent and independent data and things, and I talked to him, and I should thank him, because he was a big help to me, and, you know, he had the data in particular ways, and I was like, well, it would be great if it was like this, and he was like, you do it for me, and so, as always, lots of great colleagues out there.

DR. GALLAWAY: I would just take a look at it, and you may have already done it.

DR. FROESCHKE: It's been a while, and so I would have to actually look at what I did.

CHAIRMAN NANCE: Okay. Any other comments or recommendations from the SSC on this? that was a great discussion. Lisa, thank you very much for that presentation.

DR. HOLLENSEAD: Thank you, all. It's sort of an unconventional document, and so it was an unconventional presentation, and so I appreciated it being a little bit more of a brainstorming session, and so thank you, all.

CHAIRMAN NANCE: I think it was, and I thought we had a lot of good input for this. Thank you. Now we'll go into the public comment period for today. Do we have anybody that would like to participate in public comment? Please let Jessica know, so we can

go ahead and do that. Bob.

PUBLIC COMMENT

MR. BOB ZALES: Bob Zales, II, representing SOFA and NACO. It's been an interesting discussion today. This last part, on EFH, I'm not sure that I understand everything there, but there was a question asked by somebody earlier, when you were talking about social and economic stuff, about who are these charts available to, or the maps and all that you all produce, and pretty much it's my understanding that they're all public, and I can tell you, with the modernization of electronics today, and I don't know who all does this, but there's a multitude of people out there, and they produce electronic charts, bathymetric charts, all this kind of stuff, and they put every little rock, every piece of coral, every artificial reef, everything that's out there, for anybody that knows how to access that stuff.

Once you do this, and when you -- In the EFH part of this thing, once you get into the deal where you've got all the bottom figured out, where all the gags live, or all the red grouper live, or everything else lives, it ain't going to be a secret anymore, and everybody is going to get it, and so, you know, that's one of our issues with the pressure and all that's on fisheries today, especially in the private rec sector, because these guys now, and some of you all may have center consoles and whatnot, and you may have some, and they've got these electric motors now, electric trolling motors, that have GPS capability.

You throw them overboard and push a button, and it holds you on whatever chair you're sitting in at that table right now, and it keeps you steady there, in two or three or four-foot seas that we've watched this, and so there's no problem with holding a boat up on a spot, and there's no problem in finding spots anymore, and so fishing has become real easy for a lot of people that it didn't used to be easy for.

One other thing. When you're talking about climate change and whatnot, and I keep reading these things to where people are talking about, well, we're going to create these environments where we can try to mitigate climate change in the oceans and for fishing, and I have yet to understand how that's going to happen.

When I was on the marine protected area federal advisory committee, years ago, they talked about all these MPAs and putting them out there and that they would help mitigate climate change, and, short of putting a dome over it, so you could control the environment and everything else that was there, I never got an answer as to

how that could happen, and so, you know, I don't know how that's really going to work.

Then we clearly need the social and economic data that we don't have right now to work with stock assessments, because clearly it could make a difference in mitigating the management measures that are out there, and so all that information -- Right now, from the commercial industry, and from the charter industry, you all are getting all that pretty good, because it's like -- Especially in the charter industry now, and I've got to put economic data down for every trip I take.

Some of you all may know, at the last council meeting, I sent a request to require private recreational vessels fishing in the EEZ to have a permit, just like every other boat in the Gulf of Mexico does, and the only boat that doesn't have a permit to fish in the EEZ is a private rec boat, and also to require a trip data reporting system, similar to what we have in the charter industry, and that would help provide you more information that you're missing, because, right now, on the private rec side, the only information you really get is from surveys operated by different people.

If you had people actually putting the information down there that was there, it would give you much better information, and so that's pretty much what I've got, unless anybody has got a question.

CHAIRMAN NANCE: Thank you, Bob. Any questions from the SSC for Bob Zales? Thank you, Bob. It's always great to hear from you.

MR. ZALES: Thank you, all.

CHAIRMAN NANCE: Any other hands, Jessica? I don't see any in the audience anymore. Okay. We'll go ahead and exit for today. John.

DR. FROESCHKE: I didn't get a chance to give my public comment.

CHAIRMAN NANCE: You are certainly welcome to.

DR. FROESCHKE: Just a response on Mr. Zales' comment, and we are aware of the habitat data that's in the chart plotters and things, and we've looked into it, council staff, a little bit, about if there's a way to acquire, or even purchase, those data, outside of a chart plotter, or platform, and we're not aware of that, and so, if anyone knows that, we would be happy to go down that path to get the information, and we just can't buy a chart plotter, because we don't have a Gulf Council boat.

CHAIRMAN NANCE: Okay. Thank you. If there's anybody online that

has that information, please let John know, so we can have that. We'll go ahead and adjourn, and we'll see you at 9:00 tomorrow morning.

(Whereupon, the meeting recessed on September 21, 2022.)

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September 22, 2022

THURSDAY MORNING SESSION

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The Meeting of the Gulf of Mexico Fishery Management Council Standing and Special Reef Fish, Special Socioeconomic & Special Ecosystem Scientific and Statistical Committees reconvened on Thursday, September 22, 2022, and was called to order by Chairman Jim Nance.

CHAIRMAN NANCE: We'll go ahead and start, and we appreciate everyone being in attendance here in the room, and also online. We'll go ahead and start with Agenda Item VIII, and it's a presentation on current approaches to allocation analysis, and, Ryan, if you would give us the scope of work, please.

PRESENTATION: CURRENT APPROACHES TO ALLOCATION ANALYSIS

MR. RINDONE: Dr. David Carter from the Southeast Fisheries Science Center is going to discuss current approaches to allocation analysis with you guys, and these are the methods that are typically reviewed in the Gulf, and he's going to review some alternative options for consideration.

He will highlight the pros and cons of each one of those options presented, and you guys should review the material presented and have some discussions, suggested revisions, make recommendations, et cetera, and so the council has a lot of work in front of it with regard to sector allocations, and so this is definitely some needed information.

CHAIRMAN NANCE: Thank you very much. Dr. Carter, are you on?

DR. DAVID CARTER: Yes, I am.

CHAIRMAN NANCE: Well, good. We'll go ahead and turn the time over to you.

DR. CARTER: Okay. Thank you. I have about, I don't know, twenty minutes or so of presentation, and so hopefully that will be enough to get the discussion going. I should say, at the outset, that this is -- Several others share the blame for this presentation, just in our group, and this was a group effort, and, as you all probably know, there was a motion that requested the Science Center to analyze alternative practicable approaches to sector allocation, and I guess it came our way because it said this specifically should include socioeconomic evaluation.

We responded back that, yes, of course, we'll present on current approaches to allocation analysis, and, really, this talk will focus more on just general approaches to allocation, and, in any of these approaches, I'm going to go into any major detail, and I would hope that would be something that the SSC would undertake, or we could do at a future date, but this is, generally, just to get the ball rolling.

To set the stage, you know, you first would consider why or when to change allocation, and this has been addressed, or is being addressed, in the Gulf, by these allocation review guidelines, and I don't know if everyone is familiar with those, and I'm not going to be reviewing that, but, again, that deals with why, or when, to change allocations, for the most part, and then, in the South Atlantic, the formalized process is a little more into what they're calling a decision tool.

What I'm going to focus on today is the question of how to change allocation and then how much to change allocation, what approaches are available and what criteria are available to judge.

These are the types of allocation mechanisms that I'm going to discuss, and, again, I'm not going into any major detail, and what I will do is I will introduce the approach and present some benefits and costs, or advantages and disadvantages, and then a little discussion at the end.

This list is not exhaustive, nor is the list of advantages and disadvantages that I will put forward. This is, like I said, just to get the discussion going, and so I'm going to talk about what we're all familiar with, in terms of using historic harvest, and so this would be a catch-based allocation approach, where you could just equally allocate everything, or, if there's not enough, lottery it off.

Then auctions, trading between, or among sectors, and, really, what the council currently does is some sort of multicriteria decision-making, where there is a catch-based element, but there's

also consideration of ecological, economic, social, cultural, and other factors. I mean, these are all evident in FMP documents, in the amendment, and all of the sections that bring up these criteria, not only for the allocation, but for any time there's a rule change, and, of course, you can combine these things in any which way your imagination will take you.

Catch-based allocation uses historical harvest, and it's simply just a share based on the historic harvest for a particular group, sector, or individuals, as may be the case for an IFQ system, and this is the method that has been the most generally used in the Gulf, and just in the Southeast.

The advantages are, of course, it's easy to understand, and it's widely used. It rewards fishery dependence and investment, and some would argue that, because you're trying to give things out in proportion to the amount of investment, which should be, you know, related to the amount that groups have caught in the past, that this could actually be efficient, economically efficient.

There's some disadvantages, in that, you know, because you're rewarding catch history, and you're rewarding investment, there could be -- If you know that this thing is coming, it's an incentive to build a catch history for future allocation. It could be perceived as unfair to new entrants, and you need harvest records to do this. I mean, as some IFQ-type programs, for example the for-hire sector IFQ proposal that came about a few years ago, and that wasn't possible, because you didn't have harvest records for individual for-hire vessels, just as an example.

Perhaps most importantly, and I think this is what the councils are facing now, is trying to use catch histories where you've had quotas in place, based on catch history, way back is very complicated. You know, if quotas were hit all the time, then you really have no new information on catch history, and then, of course, there's all kinds of combinations, like going over the quota and under the quota and all that, but the fact is that things get really complex for catch-based allocation, when you have a history of quotas in the fishery.

Another way to do it would be to split everything up evenly among all participants, or sectors, and then, if there's not enough, you could just allocate by phasing in a lottery.

That sounds easy enough, and it's simple and easy to understand, again, and this could be perceived as fair, because everyone is receiving the same or some randomly-assigned amount, and it should be relatively inexpensive to implement.

However, you know, if you're starting in a fishery that already has some history, you could have some people who have historically harvested losing out, and let's say maybe they lose out in the lottery, and they have all of this fishery infrastructure and investment that they can no longer use. In general, there is few real-world examples of doing this, doing this like exactly, and it's often part of some kind of hybrid system.

Auctions, in this case, you are introducing a competitive element and putting up, you know, lots, or shares, of harvest and giving people the opportunity to bid on it and purchase. You know, anyone can fish, right, and you just have to win the auction, and this approach generally introduces more economic efficiency into the whole process, that you're allocating to those who place the highest value on the harvest.

In principle, proceeds could be used to better manage fisheries, and, if you were to do this regularly, you would get some information on the value of the harvest for different sectors to create opportunities for new entrants, and, you know, this last point is important, because it's useful where you don't have historic records of catch, and so where catch-based -- In cases where catch-based allocation breaks down, you could potentially use an auction.

Disadvantages are this is, of course, costly to fishers, and you have to pay to fish, to actually receive some quota, and it does not necessarily explicitly reward historic fishery investment, because the highest bidder may, or may not, be those who have the most currently at stake in the fishery, but what's true is it will favor people with money, potentially outsiders. That is people who haven't historically participated in the fishery can come in, and, course, you can put all kinds of rules and restrictions on the auction to prevent that from happening, but, in general, a full open auction would suffer from this disadvantage.

You know, it could encourage illegal fishing, because, if it's costly to purchase quota, then, you know, people may have more incentive to fish without the privilege to do so. Some would argue that this could slow innovation, because it's costly, and a big thing is you would have to set up some type of new system, some sort of new way of having this auction operate, and then we return the question about proceeds.

I have heard that the MSA explicitly states that proceeds from auctions would have to go back to the U.S. Treasury, and whether that money could then go back into the fishery remains an open

question.

Another way you could do this, or where you could allocate, is where you have one sector that has a catch share program, and I realize that you probably can't read this, but there's a whole bunch on here from the SERO catch share program website, and you could, like they do in the Pacific Northwest, allow some transfer of the quota, either as a lease or permanently, from a catch share program to let's say the recreational sector, like they do in the halibut program, as so they're allowing leases to occur on an annual basis, I believe, between IFQ holders and what they call the guided angler fish, which is charter operators there, and so that is one way to move quota, and we have precedent for that.

This advantage here, the big one, is this would increase the economic value of the fisheries, or at least would be a mutually-beneficial trade, okay, which would provide more flexibility in the case of let's say going from the commercial sector to the recreational sector, and you would have more flexibility in the recreational sector, because now you would have that extra quota over there to be used, presumably, how the quota holder wants to for the period of the lease, and they could fish outside the season and so on and so forth.

It would allow, quote, unquote, a graceful exit for the incumbent sector, and this is they're getting paid for it, and no one is, you know, regulating that they're taking away their quota, and they're saying, look, there is this demand for it, and you can get compensated for it. This will provide secure harvest privileges for both sectors and could potentially encourage cooperation between sectors.

There is disadvantages, of course, and it could be costly, or it would be costly, to set up and monitor and have a clearinghouse, or however it's going to be operated, for the transaction, and then there's fairness issues, because, you know, the idea that those in an existing catch share program should be compensated or hold some sort of privilege right to that quota could be questioned.

To what the council really does now, which is, again, some kind of multicriteria decision-making, and I have put up the -- This is the website from NOAA Fisheries that has the information that we provide as an agency, the guidance that we have provided thus far, and the thing in red down there is a document called "Practices and Factors to Consider When Reviewing and Making Allocation Decisions", and this is, you know, a document that suggests all these different criteria that could be considered in an allocation

case.

Again, in the interest of time, I'm not going to go through all this stuff, but the general categories in that guidance are ecological, economic, and social, and it includes all kinds of stuff. In ecological, you know, the impacts on the target species and other fisheries and just the general marine ecosystem, and then, you know, economic concerns are like efficiency or increasing, or changing, the value that the fishery brings to the nation as a whole and then economic impacts and how those benefits are distributed.

In the social indicator section, there is discussion about fairness and equity, potential adverse effects, and community impacts, and so, you know, we can probably bring this back up and talk about it later, but this would be a whole other presentation in and of itself.

The advantages are you can, of course, explicitly address multiple objectives. Because this occurs in, you know, a council process, it could foster fairness in negotiations that go on and discussion. You could use some of these other objectives to adjust historic harvest formulas, and I think this has been done in the past, and so adjust the catch-based allocations.

The disadvantages are, and this is a big one, and anyone who has been to a council meeting will attest that it can be very hard to agree on how to weight the objectives, and there is different interests involved, and trying to understand which particular criteria is most important, in a given context, is very fraught, and I'm going to state this somewhat just quickly here, but some criteria, specially economic efficiency, are very complicated with the current management strategies.

For example, there has been questions about moving quota say from a commercial sector that is efficiently operating with an IFQ system over to a recreational sector that is not operating at the most efficient way, and so it becomes complicated to figure out how to do this using the traditional economic criteria of say equal marginal principle.

The last, and what we see as perhaps the most important thing here, is that this multicriteria decision-making has heavy, heavy data and modeling requirements. You know, if you're going to try to weigh all of these objectives, you first need to identify the criteria and measure them and figure out how you can put them all together in a way that makes sense. Of course, we do that now in these big documents, but, you know, others have suggested

alternative ways.

I have a quick little diversion here into bioeconomic and management strategy evaluation models, and, you know, this is one way that you could potentially collect all of the criteria and have some way that you would spit out some kind of magic number that, you know, would help in the allocation process.

These allocation decisions are huge, and the work that would go into constructing some kind of a model to assist that would be similar to what goes on with the SEDAR. I mean, you would just -- You would need a lot of effort to do it in a scientifically-defendable way.

In the case of SEDAR, all parties are mostly aligned in the objective, which is just to measure how many fish there are out there, and, you know, there may be some disagreement over, you know, parameters that may mean more or less fish, and maybe higher or lower quota, but, in general, everyone is on the same page. We're trying to figure out how many fish there are.

If you were to try to do something similar for allocation, it's going to be really complex, because not all the parties are going to be aligned, because you're dealing with the question of who gets the fish, and so, you know, taking the same type of example, where like one parameter you're arguing over -- It might be that, you know, if the parameter takes this value, one sector gets more fish than the other sector, and so there is this possibility that, even in the science, there would be arguments and difficulty in agreeing on a model that everyone would abide by, in the case of allocation.

Let's say you could get past that, and you would need some detailed data, and we have a lot of data from the commercial sector, logbooks and other types of data sources. In the case of the recreational sector, we don't have so much, and we do -- We have recently started the for-hire logbooks, but we don't have something similar for private anglers, and so let me continue on this little diversion.

No matter what we're going to do, we would likely need more detailed information from anglers, and why would they provide this information? You know, what type of incentive could we provide for anglers to participate in this program? It's not some kind of condition of a permit or anything like that, and so, here, I'm going to give a little plug for a presentation that our group, through Zander Gordon, made, I guess -- I don't know if that was -- It was earlier, but it was related to some kind of angler

logbook program, where we would give people some extra days if they participate in a logbook program, and so we're currently still working on the logistics of that, but I just wanted to bring it up here as this is one type of approach to try to get, you know, more detailed information from anglers.

We've also been talking with folks from -- That make angler apps and trying to get information, perhaps, shared from those apps, to the extent that it's legally allowed, and we could get more information about what anglers are doing, at a detailed level.

In summary, the current multicriteria approach requires heavy ongoing council involvement, detailed data, and accurate models. These alternative allocation approaches, or mechanisms, like auctions and intersector trading and lotteries and so on, these would require more design effort upfront, but presumably less data and modeling for ongoing management, but, regardless of the allocation strategy adopted, more detailed data would be necessary, especially from the recreational sector. Okay. That's all I have. Thank you.

CHAIRMAN NANCE: Thank you very much for that presentation. It's very thought provoking. You know, as I was sitting here listening, you not only have initial allocations between groups or sectors, but then you have allocations within those sectors, and so there is a multitude of different things that have to occur here in order to -- From a management process, and so I think you've given us certainly some good detailed information there, as general information, and so let's, as an SSC, discuss the presentation and ask questions on the presentation, and then we can have a discussion about what we want to input, if anything, into the council. Rich, please.

DR. WOODWARD: Good morning. Sorry I was a little bit late, but I did catch your whole presentation, David, and thanks very much. It's interesting stuff and a good discussion. I had a couple of -- Well, I had a couple of questions, and so, first, in your slide on the auctions, you said that illegal fishing might go up if there's an auction, and is there evidence of that? I mean, I'm not aware of any sort of strong theoretical reason why an auction might lead to more illegal fishing than any other allocation method, and so I'm curious if there is empirical evidence for that finding, and then I've got another question, or couple of questions.

DR. CARTER: Should I answer these now?

CHAIRMAN NANCE: Yes, please.

DR. CARTER: Okay. Well, let me also just back up and say that I think I can speak for our group, but none of us are experts in any of these -- You know, any of the things that I've brought up. These are all things that we're learning as a group. That said, I don't know of any evidence, and I think this might have been something that we read in a review paper, and I believe that Juan Agar is on the line, possibly, and I'm not sure, or, well, actually, I think he's teaching this morning, but said he would be on later, and he may know more about that, but that's definitely something that we could look into, and it's a good point.

DR. WOODWARD: I'm just curious, and so one of the -- It seems, to me, that there may be value in, however you allocate, reserving a portion of the allocation and auctioning it off, and that's an approach that was done in one of the very first tradeable rights programs that was implemented in the U.S. for sulfur dioxide emission permits, and they allocated based on historical emissions and then held back a small portion, and auctioned it off, in order to get a sense of what the value of the rights are, and I think that could be particularly useful in this context.

Sort of if you had the -- If you take out let's say 5 percent of the allocation, and you never allocated the full 100 percent, but rather held back 5 percent, and then were able to see where -- You know, who bid and what prices were on that, that could be very useful.

However, that approach raises a whole bunch of issues, in terms of, you know, what percentage of the allocation should be held back, and I know that there was some economic analysis that looked at that for the sulfur dioxide program, early on, but that's going back into the late 1980s and early 1990s. Depending on how that would be used, it might be possible for one group of users of the resource to game the system, particularly if there is market concentration there, and so, anyway, I do think there could be value, no matter how you do it, in keeping a portion back and auctioning it off, but it requires a fair amount of work to figure out exactly how that would be implemented to best get the valuable information, and so thanks again. It's interesting stuff.

DR. CARTER: Okay. Regarding that, the value discovery, I guess, is what Rich is referring to, and some of the early discussion in our group, with regard to auctions, related to this idea that we could potentially use an auction, let's say in the recreational sector, to come up with market-based estimates of value to use when we were, you know, offering advice to the council regarding the economic efficiency of allocations between commercial and

recreational.

In the case where the commercial sector has an IFQ in place, has a catch share program in place, and you do have an estimate of value there, you could potentially get something comparable in the recreational sector, by -- You know, by an auction, and so that was just, I guess, history for the record, and that was some discussion several years ago, and I don't know where -- You know, it hasn't really gone anywhere in our group, and I don't know if it's gone anywhere else in council discussions.

CHAIRMAN NANCE: Thank you. Doug, please.

MR. GREGORY: Good morning, and thank you, Chair. Thank you for this incredibly thorough and interesting presentation that kind of describes where we've come from and where we are now, and I note that you noted, in the beginning, that this was the beginning of the discussion, and it's not intractable, but it's a very difficult discussion, and so I appreciate what you and your team have done, and this presentation is very good. Thank you very much.

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

DR. KARNAUSKAS: Good morning. Thank you, Chair, and thank you, David. That was a really great presentation. It was very thorough, and it gave me a lot to think about, and so I appreciate it. I wanted to go into the multicriteria decision-making and understand a little bit more about the claim that there is heavy data and modeling requirements needed.

I can certainly understand, you know, if you were starting from scratch and trying to come up with some magic allocation that is optimal, you know, quote, optimal, that that would require heavy modeling and data, but I've been following the South Atlantic's decision tree process, which, you know, it looks like they give some basic guidance on whether it's a good idea to reallocate quota, or increase to one sector versus another, and it's, you know, based on some very basic data points, like the level of discard mortality, stock status, whether or not ACLs are being met.

I just wanted to question if there is -- You know, if that sort of multicriteria decision-making really requires data and modeling or if there are steps we could make in that direction that, you know, could be accomplished with the data and the resources that we already have on-hand. Thanks.

DR. CARTER: I can't address the South Atlantic tool directly, and

I've seen a little bit of it, but I haven't reviewed it formally. That said, it was my understanding that it does, you know, offer guidance with regard to, you know, when you would want to consider allocations.

I don't know, again, whether it offers, you know, guidance about how much to allocate, and that discussion is much more complicated, and, you know, the multicriteria -- I guess, as an economist, we tend to focus, like you said, on, okay, for some models, that can give us the optimal. I think, once you move away from, okay, we're not going to do the optimal, then you're in this place where you just have all these different criteria, and, you know, optimal according to economic efficiency.

If you don't do that, then you're in this space where you have all these criteria all over the place, and, when I'm referring to heavy data requirements, you know, you could just start bringing in all kinds of criteria and all kinds of -- Which require lots of data individually, and then there's this idea of how you put them together.

Now, I guess, you're an ecosystem modeler, and so maybe that doesn't intimidate you as much, but, in general, it would require some heavy lifting. You could make, probably, some broad-based, you know, discussions about maybe -- Or inferences about which way different criteria would change, but then there's still this idea of having to weigh them, and I don't know if that helps, if there's anyone else in the room that can address this.

DR. KARNAUSKAS: Thanks, David. That helps answer my question. Thank you.

CHAIRMAN NANCE: Thank you, Mandy. Sean, please.

DR. POWERS: Thank you for the presentation, and I appreciate the conversation. Both Lee Anderson and I were on the National Academy of Sciences panel that looked at the LAPPs programs, and it was interesting that most of the concerns that we heard with limited access actually related more to initial allocation concerns than actual problems with the limited access programs, and, obviously, the stakeholders were conflating the two, but, when you looked at that report, one of the recommendations was to encourage more forethought, or at least corrections, into how allocation decisions were being made and just being more transparent and getting more feedback into those allocation decisions, and so it is an important issue.

I have a couple of specific questions though, and, in Slide 6, and

this is not in my wheelhouse, but what is efficiency, and how do you all quantify it? You talk about efficiency throughout the presentation, and that's not something I'm familiar with, and how do you define "efficiency", and then how do you all quantify it?

DR. CARTER: Okay. In this case, I'm referring to the net benefits, and so the economic net benefits, and so the amount of, you know, value minus the cost to produce a fish, or to -- And the use of the fish and how much of these benefits, net benefits, can we get, as a nation, out of a given fishery, and so we, obviously, want to -- From an economic perspective, we would want to maximize those, and, in that case, you're moving the fish around in a way to generate the maximum benefit, the maximum net benefit.

You know, it would be -- You know, I guess the analogy isn't perfect, but, if you had like a plot of land, and you were trying to allocate it among different plots, or different crops, to figure out what is the most, you know, net benefit that you could generate from that land, and you may put some in a certain crop and then put it in a different crop, and, if you put it all into one, you would generate less net benefits than you would if you, you know, did some other kind of mix.

That is generally what I am referring to, I think, and then, in terms of measurement, you need to understand the value generated, economic value generated, in each sector that you're considering, and so, if you're considering a commercial sector, generally, it's, you know, the value that you're getting from the use of that fish, both in terms of the profit that the operators throughout the system are able to generate and then, ultimately, down to the retail level, where that is ending up, and there are some benefits all the way through the process, benefits minus costs.

In the recreational sector, it's a little more complicated, because there is no market for the fish in the recreational sector, and you have for-hire operators, but, for the most part, you have a private angler that combines their time and money, resources, in order to generate some, you know, some value to them for the process, I mean from the fishing, and, of course, they have choices, and they could do something else with their time and money, and so, you know, we use that information, or use that knowledge, that people make tradeoffs, to try to figure out what people are willing to pay, and then we, you know, figure out what things cost, to try to make an assessment of the net benefits in the recreational sector.

Then, you know, generally, once you have this information, you can try to understand, you know, given like the current mix, the

current quota, how much value you're generating from the fishery overall, and then, if you were to change the quota, allocation, you know, whether that would change the net benefits generated from the fishery.

You know, there is probably maybe some other folks in the room who have taught this stuff, probably much longer than me, and might be able to provide some examples, but I can answer more questions too, if you want.

DR. POWERS: So efficiency is based on economic benefit, and so that's economic benefit to the nation and not the individual fisherman, right, and, I mean, it's -- When you look at efficiency in this context.

DR. CARTER: That's right. The fisherman would be operating in, presumably, an efficient manner, but, no, we're talking about taking that all the way up to, again, the nation, like if you were using this as an input into -- You're using the fishery to -- You know, can we generate -- How much value can we generate from this resource?

DR. POWERS: That's similar to other ways that federal agencies look, right, and the Corps of Engineers, the EPA. I mean, at the heart of their -- At the end of their criteria, it's always greatest economic benefit to the nation.

DR. CARTER: That's one of the criteria, and I think there is a standard, in the MSA, that says -- I believe, and I'm not sure of the exact interpretation, but it says something to the effect that you're not supposed to focus only on economic efficiency as a criteria, and the other reason is they'll do what they call benefit-cost analysis, when they change rules, and try to measure the relative change in economic benefits from say, you know, an increase in a water quality standard, for example.

DR. POWERS: I guess -- So this is all leading me to I guess one of the disadvantages, or criticisms, of the multicriteria is that it could be very subjective. I mean, obviously, unless you have a specific goal, like economic efficiency, or things like that, and everything else would impose subjectivity, because, like you said, we'll use some kind of multicriteria, and maybe it's more heavily weighted on catch history, but it's more multicriteria, and so, to me, that's one of the big concerns, is how subjective that process would be if you don't have a specific goal, like economic efficiency, measured, or in that criteria, as the goal.

DR. CARTER: Yes, and, I mean, incidentally, all of these things

have subjectivity. Go ahead.

CHAIRMAN NANCE: I was just going to see that I see Scott's name up there, and, Scott, did you have input on this particular discussion?

DR. CROSSON: Not on this one, and I'm sorry, but Matt said there was a question -- Matt had messaged me and said there was a question about how the South Atlantic Council allocation decision tree works.

CHAIRMAN NANCE: Okay, and so I'll get back to you, and I just wanted to continue this, but I will get you then in a moment. Thanks, Scott, for being on. Sean.

DR. POWERS: This is the last one, and then I will let other people take over, and so, along those lines, wouldn't auctions be one way to -- Wouldn't that mean that auctions are a better way to approach a lot of this, if your goal -- I realize that it can't be your only goal, being economic efficiency, but wouldn't that be a way to look at it? I mean, that's also consistent with how the government essentially allows access to other natural resources, is auctions and leases and those types of things.

DR. CARTER: Yes, exactly. Auctions would likely be a preferred alternative, if your main focus is economic efficiency, and, with regard to subjectivity, there is all kinds of subjective decisions that would likely go into the value of an auction, but, once that's set up, then, you know, you have a mechanism that occurs on a repeated basis that would be available to reallocate as needed.

CHAIRMAN NANCE: Thank you. Dave Griffith, please.

DR. GRIFFITH: Thank you, Mr. Chair, and thanks, David, for this presentation. I really enjoyed it, and I think it was quite informative, and I also want to thank Sean for bringing up the efficiency question. I was wondering about that myself.

I just wanted to note that this discussion we're having this morning dovetails really nicely with the discussion that we had yesterday about the inclusion of social science information in stock assessments, and then, of course, we got into the whole issue of social science information importance in management decisions, and clearly this is more of a management-type discussion we're having today, with the allocation discussion.

From what I know on this, as I was listening to David's presentation, is that we do continue to think of value in terms of

economic value, and I do understand that maybe an auction can put a dollar figure on a fishery, but there may be other reasons that people would be bidding on these fish, and like Nature Conservancy could just bid on it to conserve the stock, and just to take away all fishing pressure from the stock and things like that, and so there are other reasons that people would bid on fish that don't really have anything to do with economic efficiency.

By the same token, there's a lot of reasons to think of value in other ways, like the value of, you know, spreading allocation over a number of different communities, even if people, you know, didn't have the amount of investment in a fishery, from community to community, and for reasons of giving access to the public fresh fish, and also helping certain people stay in the fishery.

There was a wonderful study done of the New England fishing economy, years and years -- I think in 1987, where they saw that -- They divided up the fishery into capitalistic fleets and kin-based fleets, and they found that these kin-based fleets would stay -- They would continue to fish, and continue to hire their relatives onto their vessels, even if they were just breaking even, or losing money, because they just wanted to keep their relatives employed.

They saw a lot of value in that, and that was -- You know, that would have been important in any kind of management decision that was made about allocating the groundfish stocks up in New England, and so all I'm saying is that -- I mean, I would advocate for the multicriteria decision-making, mainly because, you know, it does incorporate a lot of social science information that is not just economic and not just about efficiency, and so that's my comment. Thank you.

CHAIRMAN NANCE: Thanks. That was a good comment for me, and I sometimes narrow my focus on things, and that was good. Will, please.

DR. PATTERSON: Thanks, Mr. Chair, and thanks, David, for the presentation. Several folks have pointed out that it's been quite thought-provoking, I think especially for those of us who are more on the pop-dy or fish biology side of things, and don't spend a lot of time thinking about these issues, and that's really important, to consider the full breadth and possibilities here.

I think that's partly why the council, in their motion here, requested an analysis of alternative practicable approaches to sector allocation, and I think, as a science body, when we have allocation types of issues that come before the SSC, I'm always

pretty cautious about this, and think we should tread carefully and comment on the science, and not so much the allocation outcome, or even the objectives of reallocation.

This is a really informative discussion about the possibilities, and there's not much here, and David clearly stated that perhaps that could come later, as far as analysis of utilizing any of these different approaches versus current practice for the Gulf Council, but, in doing so, and Sean was getting around to this a bit in his comments, I think it's important, when you evaluate any approach, that you understand what the objective of that approach is, or, in this case, if the council is pursuing reallocation, what are the objectives of that reallocation process.

If we, as scientists, then understand what the objectives are, and see what the different approaches, analytical, quantitative, semi-quantitative, what have you, then we could comment on whether they were likely to achieve the stated objective of the council, but, absent an objective, and a clearly-stated rationale, I think it would be tough for us to comment, you know, concretely on any particular approach, because we wouldn't know what it was trying to achieve.

Then, lastly, I thought David's comments were particularly germane about this idea of valuation, and we kind of got around to this a little bit yesterday, when we were talking about socioeconomic data and analyses incorporated into assessment, but we mostly talked about management and not assessment.

This whole conversation about efficiency and how you define it, I think we could have the same conversation about value and how you define it, because, for many fishing constituencies, you know, the value falls under ecosystem services that are more cultural than provisioning or other types -- Other types of ecosystem services, and it's tough to put a value on spiritual or aesthetic types of value.

You know, David pointed out that some groups may bid, in an auction setting, on quota, to set it aside for conservation, but I think we also need to be aware that some groups that may have incredibly high value, or place incredibly high value, in having access to a fishery, or allocation to, you know, landings, they may not have the financial means by which to actually bid on something, and that doesn't mean the value isn't there, but it's just that you can't quantify it in a dollars-and-cents perspective, through an auction, because they don't have the ability to actually bid and drive the price up through that means.

I think, perhaps, there are regions in the U.S., the Pacific Islands, the Pacific Northwest, Alaska, where Native American, or Native Islander, fishing rights have been part of the management process, and the value, and the cultural value, that have been placed on those rights, and incorporated into management, I think are perhaps important examples to look at for how that could be done, but I think, currently -- You know, when we were talking about economic efficiency, or trying to put everything into dollars-and-cents, I think we're missing an important component of what value actually is.

CHAIRMAN NANCE: Will, thank you very much. David, I see your hand up. As the presenter, you're welcome to interject any time.

DR. CARTER: Okay. I just wanted to address the points that David made and what Will was following on, you know with regard to auctions and economic efficiency and what they're calling other reasons other than economic efficiency. I don't mean to be flip, or crass, or anything, but, in general, all of those other reasons, at least from a -- You know, from a national perspective, when you're talking about generating the most value from the fishery, they would all be competing in this auction.

You know, David gave the example of let's say an environmental group thinks the whole thing should be preserved. Well, if they raise enough money to buy it all up, then so be it, and that is, you know, the cold, hard, you know, fact of the auction, and it's the same thing if, you know, there was some group that thought that, well, you know, we really need to preserve this fishing community, even though they don't have the means to bid themselves, and, well, we're going to form some kind of organization that will bid for them and will work on the objective of preserving the community by putting in a very high bid to get quota.

Now, these may be somewhat perverse things, but all of this, in the end, will relate to, you know, the economic efficiency of the use of the resource. Economic efficiency -- When something is economically efficient, in terms of resource allocation, it's not always fair, and, in fact, many times, it's not, not perceived as fair, but, if you -- The idea would be to design the auction in a way where you try to minimize some of these, you know, perverse outcomes.

I mean, what Rich stated about just allocating -- I'm sorry. About just using a little bit of the auction, and setting that aside, is one way to get your foot in the door and get people comfortable with this, and then I suppose you would expand out, as needed, but it is -- You know, the auction is -- The main goal is to allocate

according to the relative value of the harvest, and that could be for all kinds of objectives, but it's -- In the end, it's going to be maximizing economic efficiency.

CHAIRMAN NANCE: Thank you. Rich.

DR. WOODWARD: Thanks. David picked up a lot of the points that I was going to make here. I mean, to some extent, I feel like I'm in my undergraduate environmental economics class, sort of explaining what is value and where we are, and so, I mean, there's a lot of misconceptions about what economists mean when they talk about efficiency and value.

It is not limited, in any way, shape, or form, to revenue and profits. As David said, if TNC buys up a bunch of rights, that's because they value those rights, and they're putting their money on the table.

The one point that I wanted to sort of clarify, on David's emphasis on the aggregate, the aggregate comes from having efficient decisions made at the micro level, and so, if a boat has an allocation for a hundred red snapper, and they were going to make, you know, two-dollars in profits for each one of those red snapper, and a charter operator would be able to make fifty-dollars per fish for each of those red snapper, then moving that allocation from the commercial vessel to the charter vessel is an efficient exchange, and so that's why economists are very sort of enthusiastic about markets in general.

As David pointed out, and has been emphasized earlier, there are a lot of situations where we need to be cautious and not go overboard in sort of letting markets, auctions, or trading overwhelm what we also value, things like communities and secondary impacts and things like that, and so we can't go overboard in that direction.

I also -- I mean, I want to just emphasize that there is a lot of science to measuring values, and economists spent decades refining techniques, and it's not as easy as weighing fish, but it's probably as precise as estimating stocks, and so I think we need to be understanding that there is a lot of really good science in valuing things that are not tied to dollars-and-cents, necessarily, and I would be happy to explain all of those techniques to anybody who would be interested.

CHAIRMAN NANCE: Thank you, Rich. Roy.

DR. CRABTREE: Well, a couple of things. Auctions are an

interesting idea, and we've talked about auctions, I don't know, for fifteen or twenty years, and I have never had one occur down here. I think, years ago, when we set up the catch share programs, had we built some sort of auction that would start occurring at some point in time, we would have avoided a lot of the problems that people see in those programs, but I don't think any of those catch share programs could have ever come to pass, had there been auctions built into it.

On a couple of occasions, somebody has brought up NGOs buying quota and then setting it aside for conservation purposes, and, if you did that though, you would not be achieving the optimum yield in the fishery, and, ultimately, the council would have to come in and take some steps to start achieving optimum yield, and so I think the NGO would realize that that's not a productive way to go about things, because you're not going to be able to keep it.

The auctions are -- They sound great, in theory, as a way to get to efficient allocations, and the difficulty is -- I mean, the most significant allocation we have is the recreational and commercial allocation, but the recreational fisheries, by and large, are open access, and so it's not clear to me how the recreational fishery could ever bid in an auction.

I mean, whose money would it be, and then, if they bought quota, I mean, it would just be dumped into a common quota that's available for everybody, and so I don't think that's really very workable, but I think you could come up with some clever ideas about ways to set up limited fisheries that involve recreational fishermen, but are set up in way where they're actually leasing quota from the commercial fishery, and you could come up with some estimates, I think, if you did something like that, of willingness to pay, which is really what you need to get to, in order to get to these efficient allocation ideas.

We've talked about that, at the council, for, I don't know, but ten years or more, but no one has ever taken any of it up, but just a couple of thoughts though, because it's easy to see how auctions would work in a catch share fishery, but it's a lot more complicated when you start talking about open access fisheries.

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

DR. CROSSON: Good morning. These comments are really interesting, and they're kind of reminiscent of what was going on on the South Atlantic side. I guess what I would like to add to it if, you're not familiar with the South Atlantic Council's allocation decision tree, it has all these different criteria, and the National

Standards are pretty clear that you're not supposed to use, I think, economic value as the sole criteria for allocation, and there's also the GAO report that was done a few years ago that also said something to that extent.

You know, it has elements in there about, you know, MSY, and it has environmental standards, and it has stock status, and what it is is it's a semi-quantitative approach that go through this decision tree and, for each of the different categories -- Nothing is weighed, and it's not like an ABC control rule, and you go through the different categories, and the council goes through the different categories, as an exercise, and comes up with a chart that shows this category would emphasize that you should shift more to the commercial sector, or to the recreational sector, and, again, economic value is only one of those things, and it doesn't discount what David is doing here though, because I think, on the South Atlantic side -- As an economist, I wasn't particularly happy with the -- I guess, as an SSC member, I will comment, but, as an economist, I wasn't completely happy with the fact that the South Atlantic Council's allocation decision tree just basically uses value, right, ex-vessel value, for the commercial sector.

I think David's exercise here, what it's going through right here, I think it would be -- If the Gulf Council wants to develop something like the South Atlantic Council has, it would be useful for the SSC to weigh-in on the science behind the different criteria and which is the best one to use, and since the one in front of you right now is David's, on economic value, there's something that is probably a better use of science than just sort of, you know, ex-vessel value, which is sort of the de facto one that always seems to come up, and that's something that this SSC probably can weigh-in and give advice to its council. Thanks.

CHAIRMAN NANCE: Scott, thank you. Mara, please.

MS. MARA LEVY: Thanks for the opportunity to talk. I guess I just wanted to point out that the Magnuson Act has various requirements related to allocation, and that is essentially why there is a multicriteria decision-making process that's on a couple of those slides. I mean, that comes from NMFS policies related to factors to consider when making allocations decisions, and those come from the requirements of the Magnuson Act.

Although economic efficiency is one component, I think that it was mentioned that, you know, there is a National Standard that says that can't be the only consideration, and we have National Standard 4 that requires, you know, fair and equitable and promoting conservation, and we have National Standard 8 that requires that

you consider social impacts.

I don't think there's like one criteria that you can use to make allocation decisions, and I also wanted to say that I've heard a lot of talk about valuation, which I think is great, in terms of all the different ways that people can value things, and that maybe, you know, at least from my perspective, because I don't know much about it, is like that's something that I think the SSC could provide a lot of input on, about how to value different things and the best mechanisms to do that, because that's something that the council does grapple with and seems, you know, to be in the scientific realm. Thanks.

CHAIRMAN NANCE: Thank you, always. We appreciate your comments. Harry.

MR. BLANCHET: A lot of my comments were already addressed by Sean and by Will. A lot of my stuff was addressed by Sean and Will, but I do find it interesting that with an auction -- To me, it seems that the greatest economic value is actually captured from the fishery and placed in the United States Treasury, which doesn't necessarily -- Basically, to me, it kind of makes an auction challenging, to explain how that is a value to the nation, rather than keeping it within the fishery. A lot of the rest of the stuff, like I said, they --

CHAIRMAN NANCE: Harry, you cut out at the end, but I appreciate your comments that we heard. Mandy, please.

DR. KARNAUSKAS: Thank you, Chair. This is a really fascinating discussion, especially for biologists like me, and a lot of this is really new to me, but I wanted to talk about the intersector transfer. That caught my eye in David's presentation, because my understanding is that this is occurring, to some extent, already in the Gulf fisheries, and what I mean by that is that there's mechanisms where commercial quota is being used for recreational purposes, to my understanding, and so that brings me to my next question, which is what is the practical difference between and IFQ trade market and an open auction?

I wonder if there are, you know, things that you could get out of how IFQ is currently being bought and traded, if you could sort of, you know, extract willingness to pay based on what's going on currently, if that would give you some information into what might happen in a completely open auction.

DR. CARTER: I guess you're asking me, and, when you say happening currently, you're talking about -- I mean, these aren't legal uses,

or maybe can you elaborate on that little bit? I think I know what you're talking about.

DR. KARNAUSKAS: So, for example, catch share experience, or I've been told that there are, you know, recreational fishermen who are not, you know, satisfied with the current recreational regulations will buy a reef fish permit and some quota, sometimes purchasing quota at greater than the market value, just to be able to fish, you know, in non-recreational seasons and higher bag limits, et cetera, and that's why I was thinking like a willingness to pay, and how far are people paying above the market value of the fish, the pound, and that might give you some information.

DR. CARTER: Yes, and, I mean, we've hears about this going on for years, and you're exactly right. This is the type of information that would be very useful, if we had it on a regular basis, to understand, you know, that market, but, you know, I would like to know if that is legal, and, if so, then I suppose that is something that we could try to collect data on explicitly and then learn something about the -- You know, about the relative value, because it's at those margins where you will truly understand, you know, the relative willingness to pay for quota in the different sectors, and so I don't know if there's anyone here that knows anything more about this type of activity or whether it's allowed, under the rules, or anything like that.

CHAIRMAN NANCE: Mara, I think you would be the only one that would be able to speak to that, if there's anything.

MS. LEVY: Did you want me to comment?

CHAIRMAN NANCE: Sure. If you have any, yes, please.

MS. LEVY: Well, I mean, I guess the only comment is that I think it would depend on the individual circumstance. I mean, if someone has a commercial permit, and has the allocation, then they can land the fish, but they need to abide by all the commercial regulations, and so they would be selling it to a dealer and all this other stuff. As to any particular circumstance that's happening, I mean, you would need to know the details of those circumstances.

DR. CARTER: In the current system, the data, or information, that the Regional Office collects on these transactions, is there any way to know that this is occurring, or like flagged or identified, this type of transaction? Does anyone know that?

CHAIRMAN NANCE: No, it doesn't seem to.

MS. LEVY: I mean, I think Jessica Stephen might be able to answer that, but they -- I think, generally, they have to enter the ex-vessel value, right, for the fish, and I've been told that that's generally higher in these circumstances.

CHAIRMAN NANCE: Okay. Thank you.

DR. CARTER: I don't know if that's something that -- Again, this would be very, very -- To the extent that it's happening a lot, it would be really --

CHAIRMAN NANCE: It looks like Jessica has --

DR. CARTER: Okay. Great.

CHAIRMAN NANCE: Jessica, please.

DR. JESSICA STEPHEN: Typically, in the catch share system, when a trip like this is occurring, what we see is a reporting of the ex-vessel price at a higher value than what is typically there for commercial, and so, for example, if commercial is typically at $5.50 for ex-vessel, we see prices closer to ten-dollars, and we've actually increased the maximum ex-vessel price that can be entered up to twenty-dollars, so that we can capture an indication of those trips.

Now, I will say that it gets a little confusing, because they're telling us that the higher ex-vessel price, when we have communication, is due to the fresh market value, and so, if there is truly a market for fresh-caught fish having a higher ex-vessel price, it will be a little harder to disentangle that.

DR. CARTER: So that's the only way that they identify, is by the higher price, I guess, and so that's why you say it's difficult to disentangle?

DR. STEPHEN: Yes, that's correct.

CHAIRMAN NANCE: Okay. Perfect. Thank you very much. Steven, please.

DR. SAUL: Good morning. Thank you, Mr. Chair, and thank you, David, for the presentation. It was super interesting, and a useful background, I think. I have a couple of questions, one sort of higher-level question, coming back to what somebody else, and I can't remember who, asked a short while ago, which is I was wondering if there is -- If there's any additional clarity we can

have on what the council is looking for here.

Like, for example, are they interested in overhauling the entire ITQ system, or it seems that it's mostly for figuring out how to separate ITQ into different sectors, and so that's kind of my first question, and then, kind of as a follow-up to that, if there is going to be sort of intersector transfer, to Will's point earlier, and a couple other people's points, the value of a fish, of the same fish, let's say, a red snapper, right, to a commercial fisher is going to be very different compared to the value of that fish to a recreational fisher, right, and I guess, presumably, if you were to open this up to allow trade between sectors, I assume, you know, that the argument would be that the market would sort of figure that out, right, and it would then say, okay, well, you know, a commercial fisher would pay, perhaps, more or less for that same allocation, that same fish, compared to a recreational fisher, depending on how it's valued.

In doing so, I wonder -- You know, obviously, there are inequities in any of these sort of possible approaches, but I'm wondering, you know, if you'll end up with sort of inequities there, where you have sort of a lop-sided distribution, where all the catch ends up, you know, in one sector versus the other, et cetera, and so it may be worth sort of maintaining some level of sector separation, and then allocations within that kind of separate, from those separate buckets. That was essentially it. Thank you. I appreciate it.

CHAIRMAN NANCE: Thanks, Steve. I will address that first one, in that fact that, if you look at the motion that was made by the council, it's to request the Southeast Fisheries Science Center analyze alternative practical approaches to sector allocation determination other than using historical landings only, and that specifically includes socioeconomic evaluation. It was a very general motion to have the Southeast Fisheries Science Center look at that.

This precipitated, I think, this very general presentation, a great presentation, on the pros and cons of a variety of different allocation techniques, but I think, until we have a specific objective, like I think Will pointed out -- Until there is a specific objective of what they would like to accomplish, then we can be able, scientifically, to evaluate and determine whether that is -- Whether we need to change or approve that, those types of things. Does that address your question, Steve?

DR. SAUL: Yes, that's great. Thanks, Mr. Chair.

CHAIRMAN NANCE: You're very welcome.

DR. SAUL: I guess, to that end, it would probably piss a lot of commercial fishers off if we end up reallocating, because they have sort of bought, sold, and leased their shares over the years, to sort of, in theory, quote, unquote, figure out the optimal market allocation of catch, and so I wonder how that would work. I would be curious to know how that would work, and maybe it's not known yet at this time.

CHAIRMAN NANCE: No, this -- It's a general discussion, for sure, but, anyway, that was just -- This motion precipitated this discussion.

DR. SAUL: Okay. Thanks.

CHAIRMAN NANCE: Sean.

DR. POWERS: To kind of rephrase, Steve, I think that's one of the points that I was getting at with my question, is you're right that each commercial fisherman has made their decisions to get the most efficiency as an individual in the fishery, but, if the broader goal is a larger economic efficiency to the nation, then, yes, that changes the calculus that the commercial fishermen have operated under.

I guess, you know, related, is there a plan to present this to the advisory panel or the working group on IFQ? It would be great to hear some of their ideas. I can tell you, when we did the public hearings for the National Academy of Sciences report, this idea of intersector trade was widely unpopular with commercial fishermen, you know, just because of the issue that they were worried that any sector trades in a year may be carried forward and then result, ultimately, in an allocation change. I guess my question is do you all plan, and maybe this is more of a question for Carrie, for the advisory panels, or the IFQ working group, to chime-in on this as well?

CHAIRMAN NANCE: Assane. It looks like you get to address this.

DR. ASSANE DIAGNE: Thank you, Mr. Chair. On that question, the plan is for us to take the recommendations from this body here, and, when I say the -- Maybe David mentioned it, but we have an allocation working group, and the working group includes staff from SERO, from the Science Center, and council staff, and so we will take your recommendations and refine this presentation, or add those, and then go to the council and present that to the council, at a later date. Then, based on the council's reactions

and recommendations, then we will see what to do next, but that is the plan, at least in the near future. Thank you.

CHAIRMAN NANCE: Thank you, Assane. Luiz.

DR. BARBIERI: Thank you, Mr. Chairman. Going back to the question from Steven Saul about what we're trying to achieve here, if you can go back to Slide Number 2 there, Jessica, please, and so I think that, with the best of intentions, we are getting a little bit ahead of ourselves here in these conversations.

Dave, your presentation, I think, is excellent, and the I think the discussion has been very productive, but, you know, I think what the council -- What I understand, from this motion, is, really, the council is trying to see if there is a way to go beyond what is perceived as being somewhat of a simplistic, easy, I guess, you know, not as complex, I guess, right, and perhaps utilizing the data that is most readily available to inform allocation, right, this landings history.

The council is saying, you know, this is an opportunity to explore, and is there a way forward, and I think that's their question, specifically include socioeconomic evaluation and going beyond the approach that we have on the table now. I know that seems to be a simple question, but it's very complicated, and not to put you, Matt, and Dave Carter, on the spot here, but, I mean, do you see a way forward, considering the data sources that we have available right now, with our analytical capacity within the Center, and is there a way to go beyond just this landings history?

If so, what recommendations would you make, right, and what options could be explored for this analysis to be brought back, in that most general sense, and it's just integration, more explicitly, of these socioeconomic factors, and that wasn't a rhetorical question, by the way.

DR. CARTER: I think that was addressed to me or Matt?

CHAIRMAN NANCE: Either one.

DR. BARBIERI: In the sense of keeping this kind of conversational, right, and so hearing from both of you, differences of opinion, would be helpful.

DR. CARTER: Well, I mean, in terms of way forward, I think, at the very end, I was laying it out like, no matter what you decide to pursue, it would appear that there would be some big gains from trying to find out ways to get information about harvest practices

from individual anglers.

You know, the technology is there now, to a certain extent, and so there would be potential gains of doing that in any of these types of systems. Roy has pointed out that, well, how could you possibly allocate to say individual anglers, and, with the current setup, you really can't. I mean, we don't have any way to track, or monitor, harvest privileges to individual anglers, and that's just the way it is.

You would have to set up some type of a system to do that, and that would begin with getting, you know, better data, in conjunction with getting better data, and say you wanted to try a tag system or, you know, something along the lines of what our group with Zander has suggested.

To us, that seems like a way forward, just to try to understand what's going on in that very important part of the fishery, where we don't have this detailed level of data or the ability to allocate to, and so, like I said, we seem to be moving in that direction in the for-hire sector, and we've always had the headboat logbooks, and now we have for-hire logbooks, and then the question is can we get information from individual anglers and set up a mechanism for how we could move quota to individual anglers, or groups of anglers, in which case then could do things like auctions, and you could, you know, do various types of tag programs.

All of this would be moving towards not only improving the economic efficiency of the fishery, but you would likely get better information on things like bycatch and discards and stuff like that, and so, I mean, that's just, you know, my perspective, or some of the things that our group has talked about, and I don't know what Matt has to add to that.

CHAIRMAN NANCE: Okay. Thank you. Matt.

DR. MCPHERSON: I'm not sure exactly either, except to say that, you know, on the social side, there is no approach, that I'm aware of that, we could sort of determine socially-optimal allocation. We talked about, you know, value as not being just economic value, but there is nothing in the literature, you know, about how we would optimize allocation socially, and, I mean, there are methods that we could apply, like social impact analysis, that would help us to understand what the social consequences would be of different intersector allocation alternatives, but those are labor intensive, and data intensive, and I think, as David was pointing out, we're trying to get better data that could inform some of

these things.

I think we -- I mean, what we were thinking is it was a very general kind of motion, and we wanted to lay out all these different kind of options, and we wanted to come to the SSC and get some guidance from the SSC regarding that it would be good if you would flesh-out this in more detail, or you would think more about this, and then, as Assane had mentioned, coming back to the allocation workgroup, you know, and taking those recommendations and then using that to develop a more focused, you know, presentation for the council.

I think that question, in some ways, is something that we could take back to our allocation workgroup, if it's something that we need to consider more of this multi -- You know, how we would take into account kind of a multicriteria approach to sector allocation, and, obviously, there is proposals for bioeconomic, or biosocioeconomic, models, and, I mean, that's one of the things that we were trying to sort of address here, is a proposal that we received for this sort of massive biosocioeconomic modeling approach and the idea that somehow you could create this model, crank it up, and it's going to pop out these sort of optimal solutions for you, and sort of to, I think, question a little bit that idea, and also just whether it's even feasible with the data that we have the labor that we have to do something like that. I would say if that could be something that we could take back to the working group to talk more about.

CHAIRMAN NANCE: Okay. Thank you. Go ahead, Luiz.

DR. BARBIERI: Sorry, and just a quick follow-up. Thank you for that, Matt, and Dave, for the answer, and I see this tying up, and other folks brought this up earlier, and I see this tying up to yesterday's presentation and what we discussed as us recognizing, really, the value of this socioeconomic analytical, right, emphasis here on some of the issues and trying to identify some kind of way that we can communicate to the council and that we can perhaps ask for additions of some of these topics into the council's recommendation to the Science Center for, you know, research plans that can strengthen the group.

I mean, right now -- We mentioned, yesterday, explicitly, seven people, right, in the Science Center having to deal with three councils and a variety of issues, and so I think that we can use this as another kind of argument for development of that statement that can support the expansion and more emphasis on that group.

CHAIRMAN NANCE: Thank you. We're going to -- We've got several

in the queue, but we're going to take a break right now, and then we'll come back, and so at ten-to-eleven, 10:50. At 10:50, we'll come back, and I've got a list of others, and so think about what we've talked about, and then we'll be able to then come back after. Thank you.

(Whereupon, a brief recess was taken.)

CHAIRMAN NANCE: Okay. I appreciate some good discussions here, and we'll go ahead and -- Matt Freeman has had his hand up for a while, and I'm going to call on Matt Freeman, please.

DR. MATT FREEMAN: Thank you, Mr. Chair, and so I was hoping for my clarification for myself, as well as the SSC members, from one of the council members. Looking at the motion, it refers to sector allocation, and so it might be helpful just to get a little clarification if the intent was for allocation, reallocation, or both, in part since that means that this could be for current IFQ species as well as fish species that are not currently within an IFQ.

CHAIRMAN NANCE: Okay. Thank you, Matt. Dr. Frazer.

DR. FRAZER: Thanks, Jim. I think the answer, Matt, in short is both, really, right, because I think everybody is aware that most of the allocation decisions that the council has been faced with have really been resolved using historical catch data, and not entirely, but pretty much, but, you know, we've had the discussions, over the last couple of days, about, you know, how we might move forward, right, and we do get some guidance from the agency, and there's a policy and procedural directives, but they're fairly vague, right, and so, at the end of the day, we're left with some pretty subjective decisions to make, and so I think they're looking for some guidance there.

You know, probably a more objective, approach, right, that, in these allocation decisions, that are forward-thinking and recognize that we probably have a more dynamic resource than we might have had in the past, and there are societal dynamics as well that we probably haven't captured in the past, and so that's the main thinking, kind of in the big picture, but, in the immediate term is this issue of changing currencies.

When we moved from like the Household Telephone Survey to the FES, and now even using state currencies, and we go back and plug all of that information in, it results in a de facto reallocation, in many cases, and one case is the perception is that it favors one sector over the other, and so we have to go back and revisit those

types of decisions, moving forward. The short answer, or I guess a longer answer, Matt, to your question is it's really a two-pronged request coming from the council.

CHAIRMAN NANCE: Thank you. David Chagaris, please.

DR. CHAGARIS: Thank you. This has been a really interesting discussion, and I was just going to point out that, you know, even if we were to try to optimize for allocation, there's really not going to be a single answer to this, and there's tradeoffs involved, and so I think one of the things that we need to think about, with any of these approaches, is how do we first expose those tradeoffs, and so who are the winners and losers under these different allocation schemes.

For example, if you put more quota into the commercial sector, would that potentially increase discards in the bycatch sector, or, if you put more into the rec sector, would that, you know, hurt small-scale fisheries and working waterfronts, and so I think we need to be cognizant of that, going forward, that there's not going to be one single answer, and, maybe as a science body, it should be our job to just expose these tradeoffs, and then the managers, you know, make those decisions based on how they value the different fisheries, and not monetary value, but how they care and what the constituents are saying.

Then, as far as, you know, moving forward, I think that a lot of what we saw yesterday would have to take place to get to this kind of quantitative tradeoff analysis, as far as implementing the socioeconomic dynamics into the management projections coming out of the stock assessments, and I think, if we could get to that point, then we could probably get to more of these multicriteria allocation schemes, but that's going to require a lot of work, to get to that point, and that's okay, and, I mean, we need to move towards that.

Then, maybe in the interim, one thing we could do, and this is something that Mike and I were talking about at the break, is, you know, trying to pick one or two examples in the Gulf that we can kind of step through, and work through, just to see where the speedbumps and what might work and what wouldn't work, and something like gag or red grouper might be a good case study, because you do have commercial and recreational sectors, and they target the fish for different reasons, and it's mostly Florida, and so the data would be more consistent.

I would be interested in exploring, you know, a proof of concept, as far as these different allocation schemes may go, but

recognizing that there is tradeoffs there, and they need to be exposed as part of this.

CHAIRMAN NANCE: Thank you. Tom.

DR. FRAZER: I mean, I just wanted to follow-up real quick, and I was going to ask this question of Scott Crosson earlier, right, and I don't know if this is the appropriate venue for that, but, clearly, and I don't know much about it, but the South Atlantic has an allocation decision tool, and it would be interesting to hear, from him, how that tool was developed and how it was evaluated, if at all, by their SSC and whether or not the tool has actually ever been implemented to make an actual decision. I think you don't have to reinvent the wheel, if there's something to learn there, and it might be really helpful.

CHAIRMAN NANCE: Scott, are you still hi?

DR. CROSSON: Yes. Hi. Good morning. What was the -- The question was whether it's actually been used yet?

CHAIRMAN NANCE: Yes.

DR. CROSSON: Not yet. My understanding is that the council has not given its final approval yet, and so, the last time it was reviewed -- I have in my notes that the Socioeconomic Sub-Panel of the SSC reviewed it this past spring, and so I haven't seen it back on the council's agenda since the for approval.

CHAIRMAN NANCE: Okay. Thank you, and so you have that tool available, but it has not been used in any council action.

DR. CROSSON: Correct, and David Griffith just asked me for a copy of the most updated version, and so I sent that to him, and so he has the link to that, if you want to look at it at all.

CHAIRMAN NANCE: Okay.

DR. GRIFFITH: I can send that to you, Jim.

CHAIRMAN NANCE: Please send it to Meetings.

DR. GRIFFITH: I will send it to Ryan.

CHAIRMAN NANCE: Okay. Thank you. That would be perfect. Thank you very much. Jason.

MR. ADRIANCE: Thanks. I think we've had a lot of discussions,

between yesterday and today, and I find it hard to jump in, because this is so management heavy, and philosophy towards natural resource management, and, you know, Will touched on objectives, and Dave just had some more focused ideas, and I think, until we get those things, I find it really hard to chime-in, because it does hit so much on management, but I think we've had a lot of good discussion, and that, in itself, I think has been good.

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

DR. WOODWARD: Thanks, Mr. Chair. What form -- They're asking for SSC feedback, and what form should that take? I've got a motion that I could put on the table, but I don't know whether that's what we want at this point.

CHAIRMAN NANCE: Luiz, to that point?

DR. BARBIERI: I cannot -- I don't mean to speak for the council, right, but my interpretation here, and I'm just putting this out there to see if the committee agrees, right, is like -- I think what the council is asking is suppose that we were talking about just regular stock assessments, and that we were all just using surplus production models, right, and we didn't have statistical catch-at-age age-structured models, and the council is saying, okay, well, we have a tool, right here, that we're using, but we know that there is other types of information that can provide more detailed output that can take into consideration other factors, right, the age composition of the stock and the value, perhaps, of reproductive potential amongst different ages and all of these things.

They're saying, okay, if we want to move from surplus production to age-structured stock assessment models, can we do it now, and, if yes, let's go ahead, and how do we do it? If not, what data do we need to collect that we are not collecting right now, so we can get to that point, and that was my interpretation, for example, of Matt's answer to the question, saying, well, right now, there's different ways to get there, but we have data limitations that will have to be addressed ahead of time to get to that point, but I think that this would, you know, help the council understand where they are right now, and can they move forward into something more complex, or it would be so complicated, and the data needs so intense and unobtainable, that it's not really a reality.

DR. WOODWARD: Okay, and so here is my take on the situation. First of all, I think we should agree that strict catch-based allocation systems will not generally achieve the optimal socioeconomic allocation across sectors. I mean, the current

approach may be easy, and it may be clean, but it is not achieving what we're supposed to be achieving with our fisheries.

Secondly, I think we could make incremental changes away from that system that would make improvements, both in terms of economic efficiency and in terms of the non-economic social impacts, and the process of making those incremental changes will gather the information -- Will help gather the information that we want.

I mean, you don't -- You can't learn about something until you sort of experiment with it, and you change it, and then you see what the response is, and so I think incremental changes away from catch-based allocation is critical to -- That's what I would like to see come out of this discussion.

CHAIRMAN NANCE: Sean, to that point?

DR. POWERS: I appreciate that, and I largely agree, except for I'm not sure that I would feel strongly enough that the historical catch isn't an appropriate way to go. I mean, it's had decades of efficiency put on it, and so, you know, I'm open to the possibility that it's not the best way to go, but I wouldn't exclude it as saying it's not right now, without any kind of analysis.

DR. WOODWARD: Just to clarify, and, if I didn't say it, I should have said will not generally achieve the optimal socioeconomic allocation. It doesn't mean that it can't, by chance, but it's just not generally going to give you that, and, by generally, I mean all the time.

CHAIRMAN NANCE: Sean and then Will.

DR. POWERS: You said "generally" first, and I guess that -- We were just talking about it, and that's a hypothesis, and I'm not sure that I would be even comfortable with the word "generally", without some kind of retrospective analysis to see that, but that's just my opinion.

CHAIRMAN NANCE: Will, to that point, please?

DR. PATTERSON: Thanks, Mr. Chair. Yes, I agree with Sean. I don't know what "generally" means, and I don't know across how many different examples are we talking about here, as far as generalizing.

Secondly, I am still unclear what socioeconomic efficiency, the second part of your earlier statement, actually means, and so I'm with Sean. Unless there's an analysis done with potential, you

know, different approaches, and clear objectives, or hypotheses that are being tested, then I'm not sure how we could evaluate any of that.

CHAIRMAN NANCE: Thank you. Rich, let's hold off on the motion, just for a minute, and I'm going to go through these general ones, and then we can kind of revisit that.

DR. WOODWARD: That sounds fine, and I just want to emphasize that I typically abstain on issues which I don't have expertise.

CHAIRMAN NANCE: Absolutely, and, Rich, I appreciate -- This has been a great discussion, and I do want input from all, for sure, on this, and, if you have a motion, what I will say is, after we have this more general discussion, we can certainly entertain that motion, and I would not be objective to that. Will, you had your hand up before, and we've gone to this.

DR. PATTERSON: We're long past it, and so I'll just yield the floor back.

CHAIRMAN NANCE: Okay, and I'm sorry. We have so many that it kinds of moves forward. I'm trying. Let's see. Steve.

DR. SCYPHERS: Thank you, Mr. Chair. I mean, my comments have largely been said, but just to reemphasize some of the stuff that Will said earlier, and David Griffith, and Matt brought up, and I think the non-economic social aspects are really important, and I don't really know where, you know, you start with defining those as performance measures in this particular context, but I think that's a really important part of this multicriteria decision-making and modeling, and, in that direction, I did have a question, and that was, if you are constructing these type of models, that you're looking at various outcomes, do they have to all be in the same metric, or currency, and can you have, you know, recreational participation analyzed alongside, you know, commercial efficiency, or commercial economic outcomes, and it doesn't give you a direct, easy answer of what to do, but it might present the information in the measures that are most meaningful to those individual sectors in a way that at least you can see what's happing, because, at least in some fisheries --

Take the example of a small, shore-based subsistence, and economics is not going to be the best measure for those folks, and it's more access, days, those kinds of things, and you could monetize them, but I think you're not telling particularly the most compelling social story when you do that, and so my question is can you work towards models that maybe have differing types of information in

them that you can then, you know, review in this type of body or interpret at the council level?

CHAIRMAN NANCE: I think, you know, you probably could have different methods for splitting the allocation between sectors, and then, within a sector, of you still have to have allocations within that sector, you could use a completely different allocation scheme within that sector for allocation. Paul.

DR. MICKLE: Thank you, Mr. Chair. To just share my thoughts, and, again, most of them have been brought up already, and so I'll try to be short, but, when I originally saw the motion request from the council, and then the response here provided, I was kind of expecting an actual analysis comparison, and not recommendations, right, but something to bring to the SSC for us to mill over and discuss.

The presentation was wonderful, but, I mean, the response here is to present on current approaches to allocation analysis and solicit SSC feedback, and I guess the point I will make, and we can come back to others as needed, but, really, it's to present current approaches to fisheries allocation.

I would say, and I think I've heard it at least eight or nine times, that I don't know, or we don't have an idea, and everyone is kind of saying that, and so it seems like we're putting the horse and goat and the house and sink and the carts in the backyard somewhere, but I'm trying to understand what's going on, and I think it would be very interesting to step back away from fisheries, because allocation -- I think we think we own it, for some reason, but water allocation, educational funding, on the state levels, and these are allocation bloodbath fights that go on, and there is very different ways that people quantify certain things.

I would think that it would be very interesting to step back and look at allocation from a more generic standpoint and look at the approaches there from international fisheries, different things like that, that I don't think have been looked at. Even on the west coast within our country, some of those fisheries are heavily allocated, and very contentious, but, understanding that, just take a big net, and throw out what you can get within different allocation discussions and what has occurred, and look at it from a legal perspective, and see which ones fit into the National Standards and fall into the little tumblers that we need to unlock these doors to get through, but it feels like there needs to be a different approach here, and I mean that in a respectful way, but it doesn't -- I just see a lot of dead ends, from where I sit with

my SSC hat on. Thank you.

CHAIRMAN NANCE: Thank you. Even water allocations in Texas. Roy.

DR. CRABTREE: I am still thinking about Paul -- He said something about goats, but it seems, to me, that, to go beyond these high-level, general discussions, it's going to be difficult until we have a more concrete statement of what you're trying to achieve, what's the objective of reallocation or whatever, and it's kind of like we're being told that we don't like where we are, but give us advice when we don't really know where it is that we want to go.

That's pretty open-ended for us, and I think, if we had here's what we want to achieve by shifting the allocation, then we could talk about tradeoffs and ways you might get there and what might work and how it would have effects on things, but it's just not clear, to me, how far you can go without some more concrete statement of what you want to achieve. Is it that you want more economic efficiency, or do you want to achieve that, but not shift any more than this to preserve historical balance, and all of those kinds of things, and I think that's something that we would really need to make a lot of progress and start doing the quantitative analyses of it.

CHAIRMAN NANCE: Luiz, to that point?

DR. BARBIERI: I guess this would be putting Bob Gill on the spot here, but I think he made that motion, right, and he's been, during the council meetings, raising this issue, right, and that's something that is dear to his heart, and so it would be good to hear from him directly, if he can, you know to Roy's points there.

CHAIRMAN NANCE: Bob, we certainly would entertain hearing from you.

MR. BOB GILL: Thank you for throwing me under the bus, Luiz.

CHAIRMAN NANCE: Well, I will say this, Bob. You threw me under the bus on the council, and so this is payback. Anyway, we appreciate you being here. Thank you.

MR. GILL: Thank you, Jim, and you're spot-on, and so I deserve it. Yes, Luiz, I did make this motion, and the intent was more about process, and it was not about outcomes, and so the thought is that process, currently, is strictly catch, historic landings, if you will, and that's how we do it and how we have done it for many a year, and the thought was that that is not a good vehicle, as was mentioned I believe by Rich, to satisfy the Magnuson

requirement for maximizing net benefits.

Therefore, there must be some other approach taken to try to get closer to achieving the Magnuson mandate, but the methodology of that I don't now, and, as you all probably know, I'm working with Dr. Ward on one such methodology, which seems to be promising for a start on this problem, but, as was mentioned, there are probably other mechanisms to do it, and the important thing here is that, if using something other than historic landings is deemed appropriate, and, to my mind, it certainly is, then we need to be working on it and having the discussion, and it's been a great discussion, and I appreciate Dr. Carter's presentation.

It wasn't quite what I had in mind, as Paul just mentioned, but, nevertheless, start to have that discussion on how we might do better, in some practicable way, to include all those factors that we have, that we want to look at, and do better than currently, and so, to Roy's point, it's not about a specific allocation, and it's about establishing at least one other process, and more if they're there, that is scientifically viable and acceptable to consider allocations at the council level.

In my mind, to Matt's point, that's all allocations, whether it's within sectors, between sectors, and that's what we're facing a mountain of in the near future, and we have exactly one mechanism to address it, and I think we need to do better, and we've got to start somewhere, and so I much appreciate this presentation, and I much appreciate the broad and extensive discussion that you all have had, and I am hoping that where we get to, and perhaps not this meeting, is we get down to the next level, to start to get into the things that Paul talked about, to get to some things that we can analyze and consider, and perhaps the methodology that Dr. Ward and I are working on might be one of them, and start to delve into what are the problems with Process A or Process B, whatever it happens to be.

Having that discussion is more important than which methodology, and so I hope we can move forward on delving deeper into these considerations and see if we can't come up with alternatives that make sense, both from the science side and from the council side. Thank you, Mr. Chairman.

CHAIRMAN NANCE: Thank you very much. I appreciate those thoughts. Will, to that point, please?

DR. PATTERSON: Thank you, Mr. Chair. Thanks, Bob, for that broader context, and I think that was really helpful, and it might have been good to have heard that on the very frontend of this,

but, still, we've had a pretty good discussion around this topic, but you do provide some greater context as to what the intent of the original motion was.

As far as having different processes and approaches, I think that's a perfectly valid thing to pursue, but, a couple of times, when you were just talking about this, you mentioned to have a better result, and that's where you kind of lost me, because, in order to evaluate better, we're comparing two things, and we're -- A lot of times, as scientists, we're testing hypotheses about do you see an improvement, and so it still either has to be a goal for what you're trying to achieve, in order to evaluate whether one thing is better than another, and I think that's kind what we're missing, to this point.

CHAIRMAN NANCE: Thank you, Will. Jessica, Sean sent a motion.

DR. POWERS: I think it encapsulates what some of us all have been talking about, and I would welcome any wordsmithing.

CHAIRMAN NANCE: Sean, would you please read that motion?

DR. POWERS: I tried, like I said, to encapsulate everything, and so I phrased it as the SSC concludes that an assessment of alternative approaches to sector allocation or reallocation requires that the objectives, or goals, of future allocations be better defined by the council. The SSC recognizes that each of the approaches presented have potential tradeoffs and that defined goals would allow better quantification of the impact of these tradeoffs to different stakeholder groups.

Now, Bob just introduced one, when you said that you wanted to achieve Magnuson's goal of net benefits, and that is getting more specific, but it's not, I don't think, specific enough, and is that dollars, net benefits to whom, and those types of things, and so, anyway, that's the motion.

CHAIRMAN NANCE: Thank you. We have a motion from Dr. Powers. Do we have a second for this motion? Paul will second that motion. Is there discussion? David Carter, I'm not sure it's on this particular topic, but --

DR. CARTER: Not really, and I was just going to comment that it might be a good idea for you, either the SSC or the council, to invite some experts on allocation from other contexts, from water, air, broadband, that kind of stuff, because none of us in our group, like I said before, are necessarily experts in this stuff, and so it would probably be worth hearing from people who really

have had experience.

CHAIRMAN NANCE: Thank you. That's a good point, and I appreciate that. Josh.

DR. KILBORN: Thank you. My comment wasn't originally specific to this, but I think it's related, and, if you go back to the motion that prompted the presentation, I think that the implicit goal, or the implicit kind of hypothesis there, is that using historical landings only is potentially inadequate and potentially inequitable, and including the socioeconomic evaluations might improve them, and so, to me, we didn't really get any good understanding of how including any of these socioeconomic considerations would necessarily improve or not improve the allocation determination, and we just got a lot of information about how it's difficult and where some of the tradeoffs exist, and that's all really good, and is a first step, but I think that what we really need to do, moving forward, to make any progress is try to start putting those socioeconomic values into, you know, a process that then moves on to allocate those sector allocations.

It might include historical landings as well, but I think that that retrospective look at, you know, does this historical landings match up with the historical socioeconomic needs, and then maybe make some kind of, you know, adjustments in a numerical model that would account for that kind of stuff.

To me, it's like we're kind of missing the greater point, which is that money shouldn't be the only thing that determines landings, and, if historical landings, and the amount of capitalization that someone can put into their effort, is what ultimately goes into say, oh, so-and-so caught so many fish over all these years, because they were able to do so, and this new person doesn't have, you know, a historical landings profile built up that gives them a large allocation, and they don't have the means to create one, then they're automatically going to be left out of the process, no matter way, until they can, you know, get enough money to be a bigger player.

I think that's the point, is that that shouldn't -- There should be some other additional considerations that looks into, you know, society's needs and how are we meeting those needs, and I know that we've been talking about all of these things, but I think that connection is what has been missing, and I think that's where we need to move forward, and so thank you.

CHAIRMAN NANCE: Josh, thank you for those comments. Any discussion on this motion? Jim, please.

DR. TOLAN: Thank you, Mr. Chairman. My reading of the motion, and I don't use this term in a derogatory sense, but, if we punt this back to the council, I'm just curious how it's going to be received by the council. Thank you.

DR. FRAZER: I think it's going to be frustrating, right, and obviously -- I'm just sitting here going, all right, and so we have a problem, and we recognize that we have a problem, and we would like to get some insight how to move forward from the SSC, and the SSC says we're not going to help you, and I'm trying to work -- You understand why we have the problem, right, and so even just moving forward with some suggestion, with regard to what might be an appropriate process, right, and, again, we're a one-trick pony, as Bob said, right now.

We've got historical catch records to deal with, but we recognize that there are all of these other issues that come into play, and some of them are economic in nature, and some of them are, you know, more on the social side of things, but we have no way, really, to integrate that into our decision-making process in an objective way that will allow us to optimize -- You know, whatever decision we make optimizes the benefit to the nation.

That doesn't necessarily maximize it, and it optimizes, right, and so I -- This discussion is helpful for me, and we may have to come back, in fact, and provide another motion that provides a little more guidance, but I don't think it's going to be viewed incredibly favorably, just to get a motion coming back like this, and we're just going to go, that's not good, and so I don't know. I will think about it a little bit, but, Jim, I think you're spot-on there, and thank you for just giving me a little --

CHAIRMAN NANCE: Jim, to that point, please?

DR. TOLAN: Thank you, Mr. Chairman, and, to that point, I agree that I think it's going to be very frustrating, but I also think we've heard it a couple of times around the table, that this is in a realm that's really more of the management, more so than what the SSC does, and so we've talked about -- We haven't really been given any analysis to evaluate. We've been given this management things that really falls out of the realm of what we normally do, in terms of the SSC, and so I'm just curious. Thank you.

DR. FRAZER: Jim, so that's why I asked the question to Scott earlier, right, and so, in the South Atlantic's case, I haven't seen the decision tool. I would like to see it, and probably everybody on the council and the SSC here probably needs to look

at it.

What I would have liked to have known is where their SSC intervened in either the development of the process, right, or the decision tool, how they might have weighed-in prior to an implementation of an allocation that was based on that decision tool, and that's, ultimately, where I think this body can be helpful, but, at this point, we simply don't have a tool, right?

Even if the SSC could say, hey, this is what a tool might look like, and I don't want to step too far out of bounds, because I know that there is the technical group, right, or Assane is working on this, perhaps, but, at some point, somebody needs to provide a skeleton for us to work with, and we can pick any species that we want to deal with, and I think Dave suggested that red grouper would be a good one, and another one might be yellowtail snapper, because there is allocation decisions between two councils, right, or maybe you do two of those, but, if you can start somewhere, I think that would be a step in the right direction.

CHAIRMAN NANCE: Luiz.

DR. BARBIERI: I think Tom already addressed some of my points here, Jim, and, I mean, I'm thinking that they are asking about the science behind this, the data, and whether the analysis would even be possible, because the data is available or not at this point, and, I mean, everything that we do here is really related to fisheries management, because we are scientific advisors to the council, and our recommendations actually turn into management decisions, but there is a whole body of science that we use to arrive at those outcomes, and I think that's what the council is asking.

I mean, right now, is it possible for us, you know, to move on and to have this more integrative, right, approach that looks at all these other criteria, yes or no, right, and we can, because we have the data, and what we're missing is people to analyze it, or -- Right? I mean, that's a direction that we can provide to the Science Center, or the agency as a whole, and say this is something that needs to move forward, or say, no, listen, we'll never -- This is pie-in-the-sky, and we'll never -- I mean, so they know, and they can move on from having this question to saying we're going to have to deal with the approach that we have on the table now and accept it, because there is no practical way -- Their motion had the word "practical" in there.

If there is no practical way for us to move forward, or for us to say, you know, maybe we can have this in five years, or in ten

years, right, if we start collecting these types of data, and a lot of Dave's presentation, and comments from Matt, address those issues, and so, you know, I don't necessarily have anything against the motion that Sean made, but I think it's going beyond just the simplistic question, right, a very simple question that the council is asking, and perhaps even the recommendation that this be, you know, more specific to action to this working group to look into, right, and discuss, or that the working group work with the Science Center in identifying what are the data needs that would be required to achieve this analysis, but something that we can provide a little more conclusive, I think, response to them would be desirable.

CHAIRMAN NANCE: Sean, please, to that point?

DR. POWERS: To borrow Luiz's phrase, to that point, I totally agree with all of this discussion, and I understand that I will be frustrating to get this motion for the council, because we essentially didn't do anything, other than listen, but I still get back -- We still can't -- I mean, you can't judge or decide which data that you need unless you know how you're going to measure this.

I mean, Bob said, and you said, a better way, and so that does imply, you know, a comparison to the way we do business now, which is historical catch, but, again, we need some definition of what you all mean by "better". I mean, is better purely economics, or is it number of participants, and so we would measure that in days, I mean, or is it that, you know, you all want all of those options on it, and then so that has us choosing which goals you will have, I mean, because we could go based purely on economics, and then, to Luiz's point, we could say we can't give you an answer right now, and the data is not sufficient, or we do it on the number of directed trips.

I mean, there's a variety of things that we could evaluate, but that would be us picking those metrics, you know, and we've talked about that a lot of those metrics are management goals, and so I understand that there will be frustration, but I do think, for us to be able to have any kind of critical evaluation of any approach, we do need to know at least what the metrics are that you all would like to see.

DR. FRAZER: That's helpful input. Again, I am sitting here, and what does "better" mean, and I think there's a recognition amongst all of the council members, right, and it's 2022, right, and there's a lot more information that is worthy of consideration in this kind of evaluation process.

We don't know what is the most appropriate information to include, right, in that decision-making process, because we don't evaluate it all, and maybe this body says, yes, these are all good ideas, but, you know, there's not enough data there to be of much value, and maybe you're forced to deal with four core things that you consider, or something like that, and so I get all of that, but, again, when you ask what's better, it's can you make --

Can you defend the decisions that you're making as a body in an objective way, right, and there is certainly -- At this point, we may be forced to deal totally with, you know, basic economic considerations, and maybe the social measures need some time to mature, but we don't even know what the appropriate ones are, and they may be different ones for different fisheries, right, but I understand what's being said right now. This is helpful enough, and I think we'll probably come back with another motion that will be crafted that will give you the direction you need to help us out.

CHAIRMAN NANCE: Roy.

DR. CRABTREE: I am probably not going to support this motion, because I think we need to try to get a little more where they are, and I'm assuming, because it's come up any number of times, that net benefits and trying to increase net benefits to the nation is sort of a goal that we're trying to achieve here.

I mean, we can't just come in and say do you want to base it all on economics, because the statute doesn't allow you to do that. Now, in my experience, in the past, when we've done net benefits analyses, it would give you an indication of the direction that you should go in order to increase it, but I have yet to see one that could actually tell you, you know, how far you can go, and so what tended to happen was, because there was no bound on it, if one sector had a higher willingness to pay, it would just give them everything, and clearly that's not a reasonable solution to any of this.

If the council gave us some guidance that, yes, we're interested in achieving some increases in net benefits, and then the other side of that though are some of these tradeoffs, and you don't want to disrupt the fishery, and you don't want to make huge changes and shifts, and so you might want to confine yourself to marginal changes over periods of time that wouldn't be disruptive to the fisheries and that wouldn't, you know, blow holes in all the programs that you have and wipe out whole fishing communities.

We could probably give them indications of what direction they ought to go, but then we would need ways to put bounds and constraints on that, and time periods on that, and you could probably start a process towards getting to a better place, but, you know, the notion of optimizing net benefits -- I don't think any of these analyses have any ability to tell you this is the optimum allocation, but it probably could give you some indications of what direction you ought to go, and the council could give us some ideas of how rapidly they would want to make changes.

CHAIRMAN NANCE: Thank you, Roy. Will.

DR. PATTERSON: Thanks, Mr. Chair. I can understand, you know, Bob Gill's frustration that the analysis that he envisioned wasn't done here, and I can understand, from David's presentation, and his comments, that they weren't able to do that type of analysis here, and I can understand, you know, Tom Frazer's comment that this particular motion perhaps wouldn't be well received by the council, because they asked for something, and then we're telling them that we can't actually do that at this stage, but I do support this motion.

I think it captures what we have been talking about, and I did send a friendly amendment to the meetings email that I think captures part of this last discussion that might be considered as a part of this, and it basically just says that -- Well, here's the text.

As part of this evaluation process, we recommend the council ask the Southeast Fisheries Science Center to evaluate the data and analytical requirements of various potential approaches to reallocation as well as conduct a data triage to investigate whether data currently exists to follow any given approach for specific fisheries.

You know, not only would this, you know, kind of spell out what would be required, but it captures this idea that data have to be examined, along with the analytical approaches, and part of the analytical requirements idea then is, is there actually sufficient personnel time and expertise within the center to perform this, and, if the answer to either of those are no, then, you know, we're kind of stuck in neutral here.

Lastly, I will just say, before Sean considers this, or we talk about this potential friendly amendment, you know, Tom, one thing that the council could do is ask the SSC to consider the South Atlantic decision tree, or decision trees from other regions, as part of a future conversation, or discussion, and I think would

actually be kind of beneficial, but, you know, we don't really have that in front of us now, and most of us haven't even seen it.

CHAIRMAN NANCE: Tom, to that point?

DR. FRAZER: Will, that's a good idea, and we certainly will kind of bring that up at the council, and we'll try to get a presentation, or a briefing, of some kind, and not just probably at the council level, but probably at the SSC meeting as well.

CHAIRMAN NANCE: Sean.

DR. POWERS: So I'm fine with it, and I think it does improve the motion and give us a little more concrete -- I just wanted to know if we wanted to make it even more concrete, and we have kicked around some species, and do we want to put a parenthesis, you know an e.g., and list some species, so it's more directed, so that the Fisheries Science Center can't come back with a similar motion that we just gave, which is what do you mean exactly?

CHAIRMAN NANCE: Paul, to this point?

DR. MICKLE: Yes, and so I seconded, and so I have to accept the -- Sean has accepted, I guess, the amendment, and is it in this current form of a secondary paragraph to the first statement, or is this -- Is your amendment interjected in some way? Is this the exact thing we're going to vote on?

DR. PATTERSON: What I proposed as an amendment, this would just be the last sentence of this.

CHAIRMAN NANCE: So it would replace "The SSC recognizes"?

DR. PATTERSON: No, it wouldn't replace, and it would just add to the end. It would become the new last sentence.

CHAIRMAN NANCE: Okay, and so basically just like this. Sean, are you okay with that?

DR. POWERS: Yes.

CHAIRMAN NANCE: Paul, are you okay with that addition?

DR. MICKLE: Somewhat. I just want to make clarification, to this group, that not only are we saying we're going to kick the can, and kick it back to the council, but we're going to give them a task to do.

CHAIRMAN NANCE: I think that's okay. I say that, and I'm going to be the one talking to the council about this.

DR. PATTERSON: It's only a recommendation.

CHAIRMAN NANCE: I will say this too, and it's a recommendation, absolutely, and the council is not going to discuss this at their next council meeting. This will be discussed in January.

DR. FRAZER: I'm reading this, and, again, if the council is going to be tasked, and certainly Carrie can weigh-in, on making another request to the Science Center, you know, there is some vagaries in this part, Will, too that probably could get resolved.

I think the Science Center might say -- You know, we recommend the council recommend the Southeast Fisheries Science Center to evaluate the data and analytical requirements of various potential approaches, and we're back to ground-zero, because they're going to say what approaches are you talking about, you know, and do you want us to pick some, and that's our issue, is we don't have an approach.

I think that's problematic, a little bit, and then I think Sean's point here of it's always better to try to constrain the ask of the Science Center, because of their workload, and I do think that there are probably two candidate species that we could look at, for sure, but it's the approaches, Will, that I don't know, really, if I can -- How I would answer the Science Center, if they asked.

CHAIRMAN NANCE: David, to that point?

DR. CHAGARIS: Yes, and so just, you know, trying to stay focused on the approach and the intention of the motion, you know, one of the things that I struggle with here is there is, what, five approaches that were presented, and they're all kind of theoretical, higher-level approaches, the way they were presented, and I struggle with, you know, what, in theory might work, versus what is actually practical, as far as, you know, like auctions may sound good, but how do you actually set up an auction for a large recreational fishery like we have here?

If there is some that we can -- In my mind, I can scratch three of those off the table, and it leaves us with the catch-based approach or the multicriteria decision-making, which is basically providing some additional information on top of just, you know, just the effect of the landings, you know, some socioeconomic metrics.

I don't know what those are, and we have to define those, and so

I don't know if would help if the SSC would agree that, you know, three of the five approaches that were presented probably aren't feasible, given, you know, the practical implementation. I don't understand how -- Well, it's like saying we should go to harvest tags, but like that is -- You know, how do you climb that mountain, and is it actually achievable, and so, if there are some here that we can't say aren't probably feasible, because of the implementation challenges, then maybe that might be helpful, especially as we pass this off to the Center, to say, hey, focus on what data will we need to do the multicriteria decision-making.

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

DR. GRIFFITH: My comment was a little more focused, and I just saw that there were two uses of the word "better", and some people did comment, and I agree that that's kind of an open -- I mean, what we do we mean by better? Maybe I was thinking, for the second -- Where it says, "allow better quantification", you might want to say, "more precise quantification", or something like that, and, I mean, I don't know, but I just don't like to see this repetition in these things.

Again, I agree with giving this to the council, if for no other reason than just to forward a lot of this discussion that we've been having over the past two days about the importance of socioeconomic data in management decisions, and, also, again, you know, a lot of the methods -- There are a lot of methods out there, and some of them been developed by economists, but, you know, other social scientists also have ways of measuring things, like I said, like happiness and non-monetary value of fisheries and things like that, and so I would support this, just because it would maybe put this more deeply on the council's radar. Thank you.

CHAIRMAN NANCE: Thank you. Will, to that?

DR. PATTERSON: I think those are important points about the "better", and I think you could just strike "better" in both cases and just have "be defined by the council" and "allow for quantification of the impacts", or "evaluation of the impacts".

To the second change that Tom sort of alluded to, and Dave spoke to, if the SSC, you know, did agree that we basically are left with two approaches, and one is the simple catch-based and the other is the multicriteria approach, then, in that last sentence that was added, instead of saying, "various potential approaches", that could be "multicriteria versus simple catch-based", or "historical-landings-based". Simply "historical-landings-based allocation approaches". Then you would delete everything to the

comma. I think that probably simplifies things.

CHAIRMAN NANCE: Okay. John.

MR. MARESKA: Sorry. I'm just thinking about Will's changes right there, and I'm not sure that, you know, looking at the catch-based or the multicriteria, that it's either or. I think the catches can still be considered within that multicriteria, and so that's just a thought.

Originally, I just wanted to talk about a way forward, and so, yesterday, in the socioeconomic presentation, there was a statement in there about how a bioeconomic model outperformed projections for a multispecies fishery, and I was just thinking that may be a skeleton that could be considered for an evaluation process, or maybe David or Scott could talk about, you know, did the Northeast Council look at that model, and was it considered, or was it just stand-alone from the entire management process at that time, and I just would like to hear about that.

CHAIRMAN NANCE: Okay. Thank you. Paul.

DR. MICKLE: I accept these changes in the amendment, and I was just following procedure. Sean, it's been changed again since you okayed it.

CHAIRMAN NANCE: Sean.

DR. POWERS: I do go back to the point that it would be nice to have specific species. Tom, you referenced two that you thought were -- Can you reveal what two those are?

DR. FRAZER: I mean, I will give you a couple to consider, but certainly red grouper might be one to consider, and I think yellowtail snapper might be another one, just because it involves another kind of allocation decision amongst kind of two regions.

CHAIRMAN NANCE: Paul, to that point?

DR. MICKLE: Sean, you mentioned, earlier, to just put "e.g.", right, and then a couple of species at the end, and it fits in right here well.

DR. POWERS: I will take that suggestion, if you want to do an open parentheses and then give the --

DR. MICKLE: Yes, those two species, and I appreciate the contribution, but we may want to think of something that's not

just Florida only.

DR. FRAZER: I don't think -- Paul, I appreciate why you would say that, for sure, but I think this is just like an initial pilot, and so I don't think it's that critical, but I don't want to speak out-of-turn. If there's another one, that's cool.

DR. POWERS: So you said yellowtail snapper and --

DR. FRAZER: Red grouper, and so both of those, as Paul pointed out, are pretty Florida specific.

CHAIRMAN NANCE: Paul, do you have one? Let's go ahead, while we're talking. Mandy.

DR. KARNAUSKAS: Thank you, Chair. I appreciate the intent of this motion. However, I am not in support of it. This takes me back to kind of where we've been with ecosystem-based fisheries management, and we're now trying to implement a fishery ecosystem plan, over the past decade, and I think we've gone through multiple iterations of trying to ask the council what their goals are, you know, what their overarching goals are for ecosystem management, and that is really kind of a dead-end, and so I don't see this leading to really fruitful discussion in the council.

We've had a lot of great discussion today, and I would like to see us move forward, in some incremental way, and I am also a little concerned with the second part of this motion, particularly the data triage, and that is something that, you know, if we had data up our eyeballs, we could spend a lot of time and effort on that, and I'm not sure what it's going to get us.

You know, we can always use more data, but, again, I would like to see us move forward with what we have, and so, to that point, and I think Will and others have already said this, I would really like the SSC to be able to look at some of the other decision tools, like the decision tree that's being developed by the South Atlantic Council, and I don't know if that requires a motion or if we can just talk about that, getting that on a future agenda, but thank you.

CHAIRMAN NANCE: Thank you, Mandy. Doug.

MR. GREGORY: Thank you, Mr. Chair. I've heard reference to this technical working group, and I couldn't find a technical working group listed on the council website, and could somebody tell me who they are, because it seems, to me, that is the group that should be working on this stuff that we're asking about, and have

them present something, or deliver something, to us and the Center to work with.

CHAIRMAN NANCE: Ryan, to that point, please?

MR. RINDONE: Doug, we appointed you to this group a while ago, and have you not been -- I'm just kidding. It's more IPT-style, and so it's SERO staff and council staff that are working on trying to get some of this information together with the science centers.

MR. GREGORY: Okay, and so it's not -- All right. Thank you.

CHAIRMAN NANCE: Thank you, Doug.

DR. ISAACS: Ryan, would you include that project that Dr. Zhang explained to us at the last meeting part of this group, or part of this type of work, related to allocation?

MR. RINDONE: The MSE tool that she had presented?

DR. ISAACS: It has something to do with red snapper, I think.

MR. RINDONE: I mean, that's -- The MSE tools are definitely a -- It's something that has been, at this point, underutilized in the Gulf. There are other councils that have done quite a bit more to adopt those approaches, and harvest control rule and things like that, and we find ourselves perpetually slammed with lots of issues, and so sometimes it makes resource allocation of those sorts of endeavors a little bit more difficult.

Work that she's doing is certainly not in a vacuum, and there's lots of folks that are working on projects like that, within and outside the Science Center, and, as we move forward with a lot of these different allocation discussions, and resource apportionment issues that are going to brought before you guys, I'm sure we'll see a lot more MSE approaches being talked about to help better inform what those decisions look like down the road, once they're made, but I think what you guys are faced with right now is problems that happen before you even get to that point, before you even decide how you're going to structure a management strategy evaluation.

You have to know what the priorities are for the user groups, and you may have -- It may not be as cut-and-dried as just, you know, commercial and recreational, and, you know, we think about king mackerel, for example, and we have different fleets within the commercial side of king mackerel, and they have different priorities for how they want to access and pursue that resource.

Then, on the recreational side, there are often differences between the private angling and the federal for-hire components, for most of the species, I would say, as far as what they prioritize for how they want to use the resource, and so understanding what it means to optimally harvest any of these individual species, or species complexes, is a very dynamic discussion, but it's still something that the council is going to have to hone-in on before we can get to a point where you can determine what metric you're actually going to use to decide how to allocate, if allocating is something that needs to be done, and then how you're going to measure the success of that, through the management strategy evaluation, depends on knowing how you're -- You know, what you're using to start the process in the first place.

CHAIRMAN NANCE: Thank you. I'm going to take these last four individuals, and we're then going to talk about the motion and how to move forward. Steven Saul, please. Steve, we can't hear you. Steve, while you fix that, I'm going to go to Rich, and, Steve, when you come on, just let us know. Rich, please.

DR. WOODWARD: Just a couple of -- A point that troubles me about the motion is the emphasis on the multicriteria in the statement, just because it seems like we're coming down on the side of one of the many options that David spelled out, and so, based on that alone, I don't think I'll be able to support this motion.

I just want to clarify that it is my scientific conclusion, as an economist, that catch-based allocation is very unlikely to yield an economically-efficient outcome. I can't comment on whether it's best in terms of other social impacts, because that's not my area of expertise.

Furthermore, based on experience in many other resources, from water to bandwidth for the internet, it is my scientific conclusion that practical steps could be taken that would lead to improvements in the allocation in this setting.

CHAIRMAN NANCE: Thank you. I appreciate those comments. Luke.

DR. FAIRBANKS: Thanks. I just have a quick question about some of the language in the motion. In the second sentence, "the defined goals that allow for quantification of the impacts", I guess I kind of have two questions, or comments, on that and the first is "defined goals" would not necessarily allow for quantification of the impacts, and so I don't know if it should be stated that way.

The second question is quantification -- How necessary is quantification, because I ask that because, based on the discussions yesterday, I mean, there was a lot of talk about the use of basically non -- You know, data that can't be quantified, things that can't be quantified, qualitative data and things like that, and so, I mean, is it -- Are we beholden to quantification of impacts, or is it more just about better understanding the impacts, to make more informed decisions? Thanks. I ask that as kind of a genuine, open question, and I'm not sure if quantification is completely necessary or not.

CHAIRMAN NANCE: Okay. Sean.

DR. POWERS: I'm fine if we change that "quantification" to "evaluation". I just always prefer to have quantitative, but, I mean, it can be for evaluation of the impact, which is broad enough. I do think that the goal needs to be specified, to evaluate the tradeoffs, and I don't know how you could do that if you don't know what the goal or the objective is.

I mean, I could take the argument that that's redundant somewhat with the first sentence, and the second sentence really just needs to point out that the analysis needs to include tradeoffs, you know, and that was Dave's point that I stole there, and so I guess I will leave it as-is, but I don't see how you evaluate tradeoffs if you don't know what, ultimately, they're trying to achieve.

DR. FAIRBANKS: I agree with you, and I understand what you're saying. I think I was misreading it more as, you know, if you had the goals, that would lead to -- Like that would make it happen, in a way, and it would mean that we could definitely have a full evaluation, or quantification, of the impacts, but I see what you mean. It's kind of like it's a necessary first step in the process, and I would agree with that, and so sorry about that. I think I just misread it.

CHAIRMAN NANCE: Thank you, Luke. Steve, are you on?

DR. SAUL: Yes. Sorry about that. Thank you, Mr. Chair. I agree that it would be useful to include some species-specific -- Some recommendations in the motion for species-specific examples, and I would recommend sort of a friendly amendment to the motion that requests the Science Center, if possible, to sort of work those examples out, such that we can sort of compare what a couple of these different options would look like, in terms of how things would be allocated, you know, what the financial tradeoffs would be to the users, to the fishers, both in the recreational and commercial sector, et cetera, you know, what kind of catch benefits

or costs would need to be incurred initially, et cetera.

Again, I know that's -- I realize that's a lot of work, and the Science Center may not have the resources for that at the moment, and timewise, but I think it's rather important, and, to go kind of a step further, it would actually be really useful to try and simulate some of this out, simulate your fishery and such, and then apply the policy for us to obtain a better understanding of how some of these would compare with one another and what the costs and benefits would be, and I think that would put us, as the SSC, in a much better position to inform the council.

I think that this is probably important enough such that, if time and finances are a constraint, it would be ideal to -- You know, maybe a third-party could be contracted to do this kind of work, but I think that it would be pretty important for us to have that kind of information, going forward, so that we can make the best, most scientifically-robust recommendation.

CHAIRMAN NANCE: Thank you, Steven. Michael, to that point?

DR. ALLEN: I actually sent a sentence that would be another friendly amendment to this. Basically, at the very start of this motion, just to make the point that we basically, based on this discussion, agree with the council that these social and economic factors could result in a better outcome overall for fisheries allocations, and so I am proposing that this sentence replace the first sentence of the motion.

It says: The SSC agrees that increased use of socioeconomic factors in allocation decision is likely, at least in some cases, to improve the overall economic and social values of fisheries relative to historical catch-based allocation metrics. I think that captures the spirit more of what this discussion has held over the last couple of days. Thank you.

CHAIRMAN NANCE: Okay. I'm going to ask Sean and Paul.

DR. POWERS: I am fine with it, the preamble, and I think you're right. I guess I don't necessarily agree that it replaces the first sentence.

CHAIRMAN NANCE: I don't think it replaces, does it?

DR. ALLEN: I was thinking that it would, but we can discuss that.

DR. POWERS: I would take the friendly amendment that it's as an introductory kind of preamble sentence, something we all agree

with, and just leave the second sentence. I realize the second and third might have some redundancy in it, but, at this point, I think we need to go forward, but it's a great addition. Thank you.

DR. ALLEN: Okay. I'm okay with that.

CHAIRMAN NANCE: Will, to that point?

DR. PATTERSON: Yes. **I mean, similar to comments made from my earlier statements, I'm not sure that it's likely or unlikely, and so maybe, just instead of "likely", "may", because then it doesn't really have a predisposition.**

CHAIRMAN NANCE: I think it it's change "likely" to "may". Paul, are you okay with that, in general?

DR. MICKLE: I'm fine with that, and I want to point out that I've been on the council, and the SSC, and some other councils, and this is the second-to-longest motion I've ever --

CHAIRMAN NANCE: I know. It is. It may be the longest.

DR. PATTERSON: The other thing is that, currently, "catch-based" isn't utilized, and it's "landings-based", because catch brings in discards, and we haven't even talked about any of that.

CHAIRMAN NANCE: Okay. Thank you, Will. We're going to have Dave Carter last, and then we're going to vote on this.

DR. CARTER: I just wanted to comment, I guess with all due respect, that what you're asking for here is pretty much what we already do. Mara pointed out that the MSA requires this multicriteria-type of analysis, and that's why there is these guidance documents that already exist.

There are several NOAA reports and technical memorandums that outline all kinds of things about how you should proceed, data requirements, all kinds of stuff like that, and so, you know, I'm just -- You do something like this, and you're not going to really get a lot of new information, and I would just state that for the record, and that, you know, you might get more if you start to look at some of the alternative approaches that have not been used that we discussed in the presentation.

CHAIRMAN NANCE: Okay. Thank you. With that in mind, we're going to go ahead and move forward with this motion, and so think about all the discussion we've had, and then I'm going to read this

motion, and then we're going to vote on it.

The motion is the SSC agrees that increased use of socioeconomic factors in allocation decisions may, at least in some cases, improve the overall economic and social values of fisheries relative to historically used landings-based allocation metrics. The SSC concludes that an assessment of alternative approaches to sector allocation or reallocation requires that the objectives (or goals) of future allocations to be defined by the council. The SSC recognizes that each of the approaches presented have potential tradeoffs and that defined goals would allow for evaluation of the impact of these tradeoffs to different stakeholder groups. As part of this evaluation process, we recommend the council asks the Southeast Fisheries Science Center to evaluate the data and analytical requirements of multicriteria versus simply historical-landings-based allocation approaches, as well as conduct a data triage to investigate whether data currently exist to follow any given approach for specific fisheries (e.g. yellowtail snapper, red grouper). That is the motion, and Jessica will go ahead and bring up that, and we'll go ahead and vote on this. Tom, please.

DR. FRAZER: Sorry, and I don't want to derail this process, right, but, again, it's a very important one to have, because we're establishing a communication that I think is really important, right, and I do think we're not quite -- There will be some discussion at the council about this, but we're still -- We don't have a process in place, right, in order to address allocation, and so there's part of this -- I'm not sure that "approach" and "process" is the same.

The approach is embedded, in a way, in a process, if it's a multifactor-type of approach, and so we're still kind of stuck, in a way, and so, as a council, we're going to have to think about what steps we take to incorporate a process that is objective and defensible moving forward, right, and so that's all I wanted to say. This motion is an attempt to help us, right, but I'm not sure we're even at the point of being able to take advantage of the motion.

CHAIRMAN NANCE: I think, from my perspective, this motion is our discussion back to the council, which will precipitate discussion back to us, in a way, so that we can, at the meeting, have that interaction of how to move forward, and I do think, while we don't need a motion for it, that evaluation of the South Atlantic tool is a step, and I will be able to talk about that, that we'll take a look at that, as an SSC, and advise the council on how useful that is. With that, we're going to go ahead and vote on this.

DR. KILBORN: Can I just ask a really, really quick question?

CHAIRMAN NANCE: Okay. Go ahead.

DR. KILBORN: I'm just curious about, if we were going to develop a process, which group would be in charge of doing that? Is that something that we would do, as an SSC, or is that a working group thing, or who develops the processes?

CHAIRMAN NANCE: Tom.

DR. FRAZER: Great question, Josh. I think part of the issue is whether or not we could have solicited a little bit of insight from the SSC to help us in that regard.

CHAIRMAN NANCE: Will, to that point?

DR. PATTERSON: I would hope the SSC never takes up the discussion about the process for trying to determine reallocation. I think that's completely on the management side, and the council, and that we can comment on the science and the appropriateness of analyses done for that process, or for a given thing, but we're already, in my view, kind of skating on thin ice here, and, you know, I appreciate that the council needs a process, and they need to define what the objectives are, but, you know, that -- My fear, in the end, is, if we commented on such a thing, or proposed such a thing, then it would be as if the SSC was advocating for reallocation, and I think we should stay as far away from that perception as we can.

DR. FRAZER: I am pondering that, Will, because it is. It's a narrow road to walk, right, and one thing that this body has going for it is it's an objective, science-based body, right, that can provide the necessary direction, but, when we're talking about a process, that's still a decision-making framework, and there's objective, scientific basis for developing those processes.

We might add boxes, for example, that we think are important, and this body might further weigh-in and say, well, these are other things that you might consider, and these are datasets that are available, or we don't have enough information in that box, and so I want to just make sure that we're -- It's, again, clear to me that more clarity needs to happen with regard to the request, both ways, right, and that's on us, and so I think -- But this is going to be helpful, right, and so I think we can have some discussion about what's within the SSC's purview and what's not, but I don't think I entirely agree that that process is completely out of the SSC purview.

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

MS. MATOS: Steven Saul.

DR. SAUL: Yes.

MS. MATOS: Jack Isaacs.

DR. ISAACS: With misgivings, yes.

MS. MATOS: John Mareska.

MR. MARESKA: No.

MS. MATOS: David Chagaris.

DR. CHAGARIS: Yes.

MS. MATOS: Doug Gregory.

MR. GREGORY: No.

MS. MATOS: Sean Powers.

DR. POWERS: Yes.

MS. MATOS: Jim Tolan.

DR. TOLAN: No.

MS. MATOS: Rich Woodward.

DR. WOODWARD: No.

MS. MATOS: Will Patterson.

DR. PATTERSON: Yes.

MS. MATOS: Paul Mickle.

DR. MICKLE: No.

MS. MATOS: Benny Gallaway.

DR. GALLAWAY: With reservation, yes.

MS. MATOS: Harry Blanchet.

MR. BLANCHET: No.

MS. MATOS: Jason Adriance.

MR. ADRIANCE: No.

MS. MATOS: Luke Fairbanks.

DR. FAIRBANKS: No.

MS. MATOS: Mandy Karnauskas.

DR. KARNAUSKAS: No.

MS. MATOS: Steven Scyphers.

DR. SCYPHERS: Yes.

MS. MATOS: Jim Nance.

CHAIRMAN NANCE: Yes.

MS. MATOS: David Griffith.

DR. GRIFFITH: Yes.

MS. MATOS: Roy Crabtree.

DR. CRABTREE: No.

MS. MATOS: Luiz Barbieri.

DR. BARBIERI: No.

MS. MATOS: Mike Allen.

DR. ALLEN: Yes.

MS. MATOS: Cindy Grace-McCaskey.

DR. GRACE-MCCASKEY: Yes.

MS. MATOS: Josh Kilborn.

DR. KILBORN: No.

CHAIRMAN NANCE: Okay, but -- Okay, and so what is it?

MR. RINDONE: By my count, it failed by one vote, but --

CHAIRMAN NANCE: Okay, and that's -- I think this shows -- I mean, we had a great discussion. Now, I would like to have Ryan, probably, present -- We talk to the council about this in January?

MR. RINDONE: Yes, and, I mean, I think that you could have some discussion about it.

CHAIRMAN NANCE: So let me ask, and is there time in the January agenda, for an hour, to have just a quick discussion on this, and, maybe, in the meantime, each of us can look at that South Atlantic tool? Luiz.

DR. BARBIERI: To quote Sean here, to that point, Mr. Chairman, and, if at all possible, if we have another SSC meeting before January, and I don't know if we have one --

CHAIRMAN NANCE: We do. We have the one January 1, that first week, and not the first.

DR. BARBIERI: Okay. Before the January council meeting, can we have -- I was just asking whether they were already on the schedule or not.

MR. RINDONE: Right now, I'm looking at the week of January 9, and so, typically, you guys favor a Tuesday to Thursday situation, and so it will be the 10th to the 12th, but I will be doodle-polling you accordingly, like normal.

DR. BARBIERI: If so, I think it would be helpful for us to hear a presentation from the South Atlantic Council's SSC, and I think it's the Socioeconomic Panel, and I think Scott Crosson is still the chair of that Socioeconomic Panel, and I don't know if they're the ones who really developed this framework, the decision tree, but I think it would be highly informative for us to get a presentation from that group for January, if at all possible.

MR. RINDONE: How about March instead, because January, right now, we have the considerable body of work for the ABC Control Rule that you guys have requested from the Science Center, and we also have evaluation of updated red snapper calibration ratios for the Gulf States surveys to MRIP, which is not likely to be a small lift, and then we have evaluation of the SEDAR 75 operational assessment of gray snapper, and that constitutes, between those three items, basically three full days, or close to it.

CHAIRMAN NANCE: Yes, and so we'll have to talk about this in March.

MR. RINDONE: There's a little more flexibility in March, and March isn't full to the brim yet.

CHAIRMAN NANCE: Okay. Will.

DR. PATTERSON: I am sorry to delay folks' lunch here, but, you know, in our discussion of this motion, it didn't appear to me that this was going to fail, and it's fine that it did, and, I mean, people voted how they wanted to vote, but I think, in our report, you know, those who voted against -- Because I didn't hear it in the discussion, and I'm not sure that we could capture it in the sentiment of the report, but pay attention to the report, and please comment on like what reservations existed, so the council gets a clear idea of what the temperature in the room was and why this particular motion failed.

CHAIRMAN NANCE: Good point. Thank you, Will. Paul.

DR. MICKLE: I heard pepperings throughout the last two hours that this will not have any effect at all, and this won't make any hay, and that's what I heard from -- I don't want to call them out, but I would confidently say that at least three or four people voiced that, that it would have no effect.

CHAIRMAN NANCE: Will.

DR. PATTERSON: So I'm not asking for any particular SSC member to provide a reason for the no, and I think that's -- I wasn't asking that, and I just wanted to clarify that, and thank you for volunteering what you thought, Paul, but I just think, in our report, we should convey those sentiments, anonymously.

CHAIRMAN NANCE: I think that's good, and I think we do a good job of capturing that discussion, but make sure that we're capturing both inputs, for sure, and I think we do, but on this one for sure. We had a great discussion. We're going to go ahead and break for lunch now. Josh.

DR. KILBORN: I was -- It's just another clarification question about process. Now that we've -- That this motion has failed, what happens to this conversation, and how does it move forward, because I got the sense that we still need to say something to the council.

CHAIRMAN NANCE: We'll have time in our March meeting to discuss

this, Josh.

DR. KILBORN: Okay, and so they will go through the failed motion as well?

CHAIRMAN NANCE: Sorry, Josh. I interrupted you. Go ahead.

DR. KILBORN: I was just going to say that they do go through failed motions, as well as those that passed, and the relevant discussions about that?

CHAIRMAN NANCE: No, the council will never see this motion.

DR. KILBORN: Okay, and so how does the conversation get to them? It's just a summary of our conversation gets presented, essentially?

CHAIRMAN NANCE: Yes, that's correct, and I present that to the council, the summary of our discussion here.

DR. KILBORN: Very good. Okay. Thank you.

CHAIRMAN NANCE: Okay. We're going to go ahead and break now, and we're going to come back at 1:15, and so it's a little bit less time, you guys. Thank you.

(Whereupon, the meeting recessed for lunch on September 22, 2022.)

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September 22, 2022

THURSDAY AFTERNOON SESSION

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The Meeting of the Gulf of Mexico Fishery Management Council Standing and Special Reef Fish, Special Socioeconomic & Special Ecosystem Scientific and Statistical Committees reconvened on Thursday afternoon, September 22, 2022, and was called to order by Chairman Jim Nance.

CHAIRMAN NANCE: We'll get started. We appreciate you all being here at the meeting, and also online. Just one follow-up to our discussion on the allocation, and, just so you don't think we're -- I had some discussion with some over lunch, and we're not just ending the discussion.

While we had that motion and so forth, and we had a great discussion, and we'll continue that discussion in March, and we're going to hopefully have a review of the South Atlantic tool and things like that. If you have motions that you're thinking about bringing, please have those ready for the March meeting, and we'll continue that discussion and be able to provide input to the council from the SSC.

We had to cut the discussion off, because have to move on to other topics, and our next presentation by Dr. Katie Siegfried, who will be here, and we're going to do Item Number IX, Review of SEDAR 68 operational assessment for Gulf of Mexico scamp, and, Ryan, if you would present the scope of work, and then we'll turn the time over to Katie.

REVIEW: SEDAR 68 OPERATIONAL ASSESSMENT FOR GULF OF MEXICO SCAMP

MR. RINDONE: All right. Katie has come up to see us today to present the findings from the scamp operational assessment. You guys might remember that we had a research track assessment for this species completed, and it started back in 2020, and the goal was to build the modeling environment for the stock. Scamp has previously not been assessed by SEDAR, and so this one is brand-new, and it's got the new-assessment smell.

Katie is going to talk to you guys about the model's construction and development and go through all the data included in the indices of a relative abundance, base model estimations and results diagnostics, and OFL and OY projections.

Scamp is currently considered part of the shallow-water grouper complex, along with black grouper, yellowfin grouper, and yellowmouth grouper, and it's important to note that this assessment includes yellowmouth grouper as well. Dr. Tolan can actually talk a little bit about this too, because he was part of the stock ID efforts for this assessment, and they found it incredibly difficult to differentiate between scamp and yellowmouth grouper unless one was very, very keen on what they were doing, and it seemed unlikely that, dockside, that that sort of activity was going to be successful, and so they have been lumped together here.

Also, commercial harvest of scamp is regulated under the individual fishing quota program, such that, when a shareholder of shallow-water grouper allocation has landed that allocation for the year, they can still land scamp on any remaining deepwater grouper allocation, and so scamp is kind of in a double-dip scenario with the IFQ program.

You guys should consider the vast amount of information that's going to be thrown at you in the next couple of hours and determine whether the assessment is consistent with the best scientific information available. You guys should also consider whether it's more appropriate to examine a separate catch limit for scamp, including whether to break scamp out of the shallow-water grouper complex, and make any commensurate recommendations to the council.

CHAIRMAN NANCE: Thank you very much, Ryan, and, Dr. Siegfried, we'll go ahead and turn the time over to you.

DR. KATIE SIEGFRIED: Thank you, Mr. Chair. I, first, just wanted to say that I'm pleased to be here. I've been the Branch Chief for over two years now, and this is the first time that I've been able to present to you in person. Also, thank you very much to Skyler. She's on maternity leave, with a little baby at home, Baby Riley, and I hope she's not listening. She may be though. You know her.

I have the pleasure today to present Skyler's work to you all. A lot of you were part of it as well, and I'm just going to go through a quick outline here. She's got the data review and updates sketched out for you, model building and configuration, the assessment results and diagnostics, the benchmarks, stock status and projections, and then our research recommendations.

This did start back in 2019, actually. The stock ID process started back in June of 2019, and we do like to point out how long this has taken, although we hope this isn't a normal research track, but we do think that COVID was mostly responsible for this huge delay in 2020, but it has been a pretty difficult road, getting the research track done and now this operational assessment.

The stock ID found that the Gulf of Mexico stock was to be separated from the South Atlantic at the council boundary line. There was no evidence of a biological substructure that would support some deviation from the management boundary, and then, as Ryan stated, it does include yellowmouth grouper, for the reasons that he stated, that it's difficult to differentiate from the scamp.

It's a very long presentation, and so I'm going to try to just highlight the differences between the operational and research track, but, if I'm going too fast, please wave at me and tell me to slow down.

Here's a schematic that Skyler put together showing the scamp

regulations. It's a very complex regulatory history, and she's got the year at the top there, starting in 1990, and then, on the left-hand side, you've got state or federal size limits, potential grouper aggregate limits, and then the differences between recreational size and commercial size limits, as well as some closures, and so there were some commercial quota closures in 2004 and 2005, and there were some recreational closures in 2005, 2010 through 2013, and then 2014 on. The point here is it's a complex regulatory history, and it's difficult to model.

Then I don't expect you to read this now, and I'm going to go through each part as it's covered in the presentation, but there were operational assessment terms of reference created by you, in cooperation with the center and the council, and it established two working groups, and so the first one is the life history topical working group, and I'm going to go through the recommendations and results of those meetings.

First, what we wanted to do, and I'm going to look in the red box, is we wanted to update life history data, as recommended by the CIE reviewers from the research track, and then with your input, and we wanted to reevaluate the maximum size and asymptotic size, in light of those modeling issues that were noted during the research track, and we wanted to re-estimate age data, using the data growth curve, and update the ageing error matrix, as necessary, and then to evaluate the representativeness of length and age composition data.

That topical working group met publicly in February and May of this year, but then also offline, IPT-style, in March and April, and the purpose of those meetings was to discuss life history issues that were identified in the operational assessment terms of reference.

On the left side, we have the topics that were covered during that topical working group, and then, on the right-hand side, we have the recommendations. In green, we've noted where there was an improvement, and, in red, we've noted where we weren't able to accommodate something that was investigated, and so, in general, we were able to use the updated age data to develop compositions.

The ageing error matrix issue was solved by including two matrices, one for the research track years and then one for the newly-aged data. This was the result of -- We were using otolith weight as proxies for age during the research track, but those data were updated for this operational assessment. The growth parameters, including asymptotic size, were investigated, and we were able to estimate the growth parameters internally to the model, as well as

use the Lorenzen option within Stock Synthesis for the natural mortality vector.

We updated the length compositions in the plus bin to the eighty-four-centimeter fork length limit, as was recommended by the CIE reviewers, but we did note that the conditional age-at-length needed future investigation, and we could not accommodate that within this operational assessment. It's a pretty constrained timeline, and so we do have that as a research recommendation, and we just kept the recreational age composition methodology the same as the research track.

I wanted to go over, because the age data were brought up quite a bit by the CIE reviewers, the timeline of the age data and the processing, and so, for the research track, and the operational assessment, if you follow the arrow at the top, we do have the stratified random commercial handline and longline. For the operational assessment, we then have 2003 to 2012, with simple random commercial handline and longline. For both research track and operational, we used a stratified random for 2013 to 2017, and then our operational was also able to use the same stratified random sampling assumptions.

The Panama City Lab reprocessed around 500 otoliths per year between 2003 and 2012 and then processed all the samples after the terminal year of the research track. We had four agers, three primaries and one expert, and they held multiple training sessions to train those primary readers and compare accuracy and precision to the expert ager, and the expert ager herself doesn't want to be called an expert, because these are very difficult fish to age, but there's nobody that we employ that does any better of a job than Laura, and so she is our expert ager.

20 percent of all the otolith samples were randomly selected and aged by the expert for the ageing error matrix, and so, again, it's still a subsample.

I don't expect you to know the years, but the point here is just the years in red were placeholder age data for the research track, and the operational assessment lines are in red, inside those red boxes, and so you can see there is some deviation from what we used in the research track assessment as placeholders, versus -- So, the blue versus red, we're using the red lines for the research track, and this is just the commercial vertical line on the left and the longline on the right.

Then this is the recreational age compositions. On the left is charter boat, and headboat is on the right. The same color scheme

goes, where red is what we're using for the operational assessment, and the blue was what was available for the research track.

Then, for the investigation into our ageing error matrix, because these are difficult species to assess. We brought to the topical working group the potential need for a different ageing error matrix for those newly-aged data. That way, we could assume some error within expert ages, the person who is the expert and what they aged.

There is not really a way of knowing whether that expert is 100 percent accurate, because there is no reference set with known ages for this species that we're aware of, and the topical working group panel decided that the model with the lowest AIC was the best fit, and that model was chosen, and, just for your edification, it assumed a curvilinear bias in the standard deviation. At the top, you have the research track assumption, and that's for those years 1991 through 2002, and then the operational assessment is for 2003 to 2012 and then 2018 to 2020.

The next recommendation that came out of the topical working group is to treat the growth parameters provided during the research track data workshop as the best available and then attempt the estimation, and so, by doing that, we could potentially use them as a prior, or we could use them as sort of a, I don't know, a safety, I guess, if we weren't able to estimate them, but, on the left here, Skyler has listed the parameters, and then on the right is the prior, in that table, so you could take a look at what was used as the prior and whether we attempted the estimation.

Like I said, it was possibly on the right, and we've got the data workshop recommendation for the growth curve, but then what was estimated internally to the model is in the blue and red, with the uncertainty around it. The estimated length at minimum age of one year was 24.7 centimeters.

The other thing that the CIEs thought that we should take a look at is how we were using the internal option in Stock Synthesis to estimate natural mortality, and then so what it did, how it worked, and then whether we should go ahead and use it to estimate our natural mortality, and it is most consistent to use this if we also want to estimate growth in the assessment model, and so Skyler did attempt that, and it did work, using a reference age of ten years, which is the age we want things to come out, sort of flatten out.

The M at the ten years was 0.17, and then, from that externally-derived natural mortality curve that was developed during the SEDAR

68 research track, the assessment panel, that was adjusted to account for peak spawning in mid-April, and so, on the right here, you have the SEDAR 68 assessment panel in black and then the estimated in the blue and red.

That was the topical working group, all of the recommendations, and so should I take a stop there and ask for questions about what the recommendations were for the topical working group? Are there any questions about that, first?

CHAIRMAN NANCE: Jason, please.

MR. ADRIANCE: Thanks. I'm just curious, since -- Given the identification issues, is there any idea of proportion, yellowmouth versus scamp, that might be in some of the otoliths or the length measurements, or is it unknown?

DR. SIEGFRIED: I don't think that's known. I remember the landings, and it was less than 5 percent, and I would bet that it was even smaller for the actual hard part data, but I don't have that number. Any other questions on these, before I move on? I might have misspoke earlier and said there was multiple topical working groups, but I am probably thinking of other species. Sorry about that.

Then, when we jump into her putting together the model, the first term of reference is to update the approved research track model with any corrections to data, any terminal year data, and then provide those updated input tables, and so, this figure that you're looking at here, you've seen for the Gulf for all of our Stock Synthesis models.

It shows, by color, the commercial and recreational catches, and they're all color-coded for you, and the abundance indices, and the red is actually the reef fish observer program, vertical line length comps and abundance index, and then we've got our mean length at age and mean body weight included down below as well, because that's something that came up during the CIE review, and, actually, it came up with you all during red grouper, and we've been paying a lot more attention to it at the Center, making sure that our mean size-at-age is consistent with the observations.

Here is all of it written down, instead of in a figure, for you. The updates are in red, and so you saw this when Skyler presented the research track, but all of the updates, or changes, are in red, and so the landings -- We've got there was an error found in the headboat landings that we have since corrected, and I will go over that here in a minute.

We've got the CVs, as provided, for the private charter that were included, and the headboat data were updated, the mean weight at landings, or sorry. Mean weight of landings also was corrected. The headboat numbers was also corrected, and then the headboat, weighted by trip type, was also corrected, and the terminal years for age compositions were updated, and the interims, where we were using a proxy, were corrected with the updated aged fish.

The correction that we found was that Area 28, which is northwest Florida and Alabama, was erroneously left out of the data provided for the research track. I think that we talked about this a little bit with gag at the last SSC meeting, and this was also found for scamp, and, luckily, it was constrained to just scamp and gag, and so these plots show you the difference between what was provided for the research track, and so on the bottom-left is the mean weight by year, and so orange is the updated corrected data in all of these figures. The top-right is the landings, and the bottom-right is discards. Now, discards were very small, in general, but that is the biggest difference that was found when this time series was corrected.

For the landings comparison, we found that it was generally dominated by the commercial fleets, but recreational charter and private landings have increased in recent years, and so, on the bottom, you can see that the dark blue is the commercial. The top-left is the landings, commercial landings, and the darker line is the commercial vertical line, and the lighter blue line is the commercial longline.

The bottom-left is the recreational, with the sort of teal color is the charter private, and the green is the recreational headboat, and so you can see the commercial fleets -- The commercial take was higher for vertical line earlier in the time period, but they're more equivalent later, and then it's definitely charter private that take more scamp, based on the data that we have, and so we needed to reevaluate the error estimates for recreational landings, and it was assumed to be 0.3 for recreational in the research track.

Then one of the other TORs is to document any changes in MRIP data, both pre and post-calibration, in terms of the magnitude of changes to catch and effort, and you will see all we did, all we found, was just an addition of the data, and so the plot on the right just shows, in red, the additional years that were tacked on for the operational, and we didn't find any errors, or changes, in calibration back in time with the rest of the time series. I'm sorry. That should be "SEDAR 68OA", operational assessment.

The next TOR was to consider the treatment of those recreational and commercial harvests, consider inputting recreational catch in weight, instead of in numbers of fish, and, traditionally, they're input as numbers of fish in Gulf assessments. I mean, in the Southeast Center in general that's true, and the recreational surveys are designed to sample numbers, and the weight information can be incomplete.

The weight estimation approach developed is following implementation of annual catch limits for use by management, and that's been presented to the SSC and council a number of times by Vivian and others, but we will continue to input landings in numbers along with our mean weight of recreational landings. That way, all of the catch advice that comes out is consistent with the way it's being monitored in those ACL files.

In general, the fit to mean weight of scamp landed by each recreational fleet is notated there in the equation of the weight estimate by year divided by the numbers estimate by year, and top-right is that equivalent, the mean body weight for charter private, and on the bottom-right is the headboat. You can debate whether we should follow the interannual variation or we should use a mean, and that's up for discussion, but that's what the data look like raw.

The accompanying error estimates provided by data providers for the operational assessment you can see in some years was quite large, and then, in other years, it was quite small. It's tighter bounds than the placeholder error that we used for the research track base model, the review workshop, but this is what the data providers gave us.

Then, in general, the discards for scamp are quite small. They are primarily from the charter private fleet, and this is before applying the discard mortality rate, and so this is not dead discards. This is total discards, and you can take a look at the discard mortality rates that are assumed by fleet. On the right there, it's, in general, larger for the commercial, probably due to them fishing deeper. The bottom-left is an illustration of the discards by fleet, again pointing out that they're primarily from the charter private fleet, and, on the right, it's a cumulative plot of the same information.

Here we have the length compositions for discards illustrated for you with input sample sizes, the number of trips, and this has to be greater than or equal to ten trips, and that's a new metric that we've been using, to make sure we have representative data.

On the top-left, you can see the reef fish observer program composition data from the commercial vertical line, and then on the right is the reef fish observer program for the commercial longline. The federal size limit is indicated by the blue-green, whatever color you want to call that, going across there for each plot. The bottom-left is the Florida at-sea observer program composition data, and on the bottom-right -- Sorry. For the left is charter private, and on the bottom-right is the headboat, and that's weighted by trip type.

You can see the discards for the recreational fleet better match the federal size limit, and we do have some in the commercial that are actually discarding larger fish than the size limit.

The Florida size limit, in all of these plots, is indicated by the red line, and the federal size limit by the blue-green line. This is the length composition of all of the landings, just to show you. In general, it was difficult for Skyler to take into account these regulatory -- The data didn't always show a strict adherence to the size limit, and we didn't always have the location data to match to each of these, or I'm sure we have it, but we weren't able to match the Florida size limit to Florida samples taken inside of Florida waters versus federal waters, and so that would be something that we would recommend for research later on, but you can see there's a better adherence, at least in the data we have, to that federal size limit, and so there must be some mixing of those other samples between Florida and the federal size limit, or the state waters versus federal waters. On the top-left is vertical line, and the top-right is longline. The bottom-left is charter private, and the bottom-right is the headboat.

These are the age composition data. Again, the input sample size is number of trips and not fish, and we have the years indicated here with the red line that are meant to show the federal regulation in that box, I believe, and I have to look. The top-left is showing -- We have some sparse data in each of these boxes, but we do have more of the age compositions for our vertical line and longline than for the charter private or headboat fleets. These are really good residuals too, by the way.

The indices of abundance that we have, the spaghetti plot there on the left-middle shows the vertical line in blue, the combined video survey in darker yellow, the recreational headboat in yellow, and then the reef fish observer program vertical line survey in red. I think, if you squint, that's general agreement. There's a little bit of a difference in what the combined video survey is showing, but then, on the top-right, you can actually use quantitative measures to see how much correlation there is between the different

surveys.

In general, we have to convert CVs to standard errors for Stock Synthesis, but that's just given the calculation here, and then standard error for each CPUE index is scaled to a common mean of 0.2, and that's based on the recommendation from the Francis paper, and it's trying to get a handle on whether dependent series might have artificially low CVs, based on their large sample sizes, and so, if we scale them all to a common mean, we avoid overweighting dependent series.

On the top-left, we have our combined video, and this is our independent time series, and that's a combination of our Pascagoula, Panama City, and Florida survey efforts. On the top-right is our reef fish observer program vertical line, and that's treated a survey because it is total catch, both landings and discards, and then their accompanying length compositions below. You can see the combined video captures a larger spread of lengths and smaller individuals, which is definitely important for cohort analysis.

That's the data, and any data changes, and are there any questions about the data before I go into the model development? Okay. Is this speed okay? Is it too fast or too slow? Okay.

Then, when Skyler first gathered all those data together, along with the rest of the team, and sort of to build the models, we wanted to plot out any noticeable differences for the operational assessment age data and then show the effect of the updated mean weight of recreational landings.

On the top-right, it shows the SSB through time, and the units are metric tons of mature males and females, and you will see, you know, there's no huge outliers, and there's no rampant changes based on these different inputs, and there's just a scaling difference, and so you'll see that the blue line is the SEDAR 68 research track review workshop base case, and so we did end up with a new base case after the research track review, and that's in blue, and then, each time you change something -- So the dark green is just adding in the updated error estimates for recreational mean body weight, and then the lighter green is then adding on the different 2003 to 2012 age data and ageing error matrix, and then further adding on, for the orange, is the update -- The headboat discard length composition, and then the final version, with it all, is the red line, and that's updating the headboat landings, mean body weight, and discard information.

You can see, on the bottom-left, that the recruits did not change

much through these changes, at all really, and the relative change of the absolute F on the bottom-right is quite small. If you look at the Y-axis, the scale is very small, and so, really, it was mainly scaling the spawning stock biomass as each improvement and update was conducted.

Then Skyler takes us through a Phase 1 comparison, and this is the model building -- What do you call it, Ryan, that nice table that you asked for and now we have to do for the rest of time, and what is it called?

MR. RINDONE: (Mr. Rindone's comment is not audible on the recording.)

DR. SIEGFRIED: Yes, and so it's taking us from continuity to the model that we're proposing, step-by-step, so you can see the incremental changes. I'm just kidding, Ryan, and I think it's a great idea. It's actually a good way for us to build the model anyway, and we just needed to show you all what we were doing.

First, we start with the blue line, and that's the research track review workshop base case. The continuity is in light blue, and that's just the changes that I just showed you in the continuity, due to data updates, and then the red is estimating growth, and that leads to the biggest changes, and so the green line is where we update the natural mortality vector, and the yellow line is updating it to the SS Lorenzen M, and so that's internally estimated.

The orange line is when we estimate growth, and then the red is the final version, where she then throws in the bias correction in SS, and then a note she has here is that fishing mortality is a proportion of the three-plus-year-old biomass killed by fishing compared to total biomass, just so you have that as a definition.

Then another part of the TOR was to investigate any retrospective bias, and this Phase 1 comparison plot is the numbers version of the pictures that I showed you on the last slide, showing you what occurs in the model to gradient and the estimated parameters that are bounded, what the parameters are that being estimated with CVs greater than one, which indicates highly uncertain, what's happening with our sigma-R, recruitment variability, and then what our estimate of R0 is, and you can see it's pretty consistent here. Our gradient actually gets better. If you look, it goes from 0.02 down to 0.0038, and smaller is better.

There are no bounded parameters in this model, and there is just as few parameters with a high CV as in the review workshop base

model, and our sigma-R is slightly larger, but a kind of industry standard there is around 0.6, if you don't know what it is, and so we're estimating it pretty well there, and our R0 estimate is quite consistent throughout, and that is in logscale, but it's not deviating much from what we saw at the end of the research track. We think this leads to a pretty improved model diagnostics, which we'll show soon, and even less retrospective bias.

The next comparison is to add even more changes in, and so I'll just quickly go through, and we made the corrections, and the late data updates is the light blue. We added the charter private early retention block, in the green, and we added the bias correction again, and then we added the -- I shouldn't say we, but Skyler added the change where she estimated fewer Dirichlet multinomial parameters, at the advice of SS developers, which I will show in a moment.

Then any kind of Dirichlet parameters that were being estimated at bounds, those were fixed, and then, again, we adjusted our bias correction, and you will see those lines are almost right on top of each other, and so each correction adjustment that she made, at the advice of reviewers, is quite consistent with the model that was being put out, but with better diagnostics.

Again, here, you'll see it's even -- It gets even better as she continues, and the gradient is even lower. We still have no estimated parameters at bounds, and we're very consistent with our sigma-R and our R0 estimation.

Then here's another table to show you some performance and diagnostics and comparing the review workshop base, or continuity, and then what we're proposing as our operational assessment base. We've got -- You know, the gradient is much smaller, and, as I described, the CV on parameters -- The number of parameters that have high CVs is not any larger, with fewer correlations between key parameters.

We have our random residuals, which is a runs test, which I can show you, and this is in the SS diagnostics package. We have more passing those runs tests than before, and our Mohn's Rho actually indicates whether there's a retrospective bias, and now we show no retrospective bias for SSB or fishing mortality. We don't have any joint residuals that have a high RMSE, and we have good hindcast ability.

The model that gets us these great diagnostics is what I will describe next, and so, again, the red is what we updated, what Skyler updated, since the research track, and, again, it's the

estimating some of the growth parameters, estimating the natural mortality internally, updating the ageing error matrix, or, well, matrices now, by adding an additional time block for that, and then our most recent time block is extended through 2020.

The stock is not assumed to be at an unexploited equilibrium level at the time series. It starts in 1986, and so we did estimate an initial F for all fleets except headboat, and that one would not estimate well, but it's an incredibly small part of the total landings.

The initial equilibrium catch she calculated using 1986 through 1990, which is the first five years of the time series, and then, as I said, the headboat catches are incredibly minor throughout the time series, and so we were not able to estimate that initial F, and we fixed it.

We used the continuous F method, and this is standard for Gulf assessments, and it's recommended where catch is known imprecisely, which is especially true for our recreational fisheries. We have large errors on our recreational charter private and headboat landings.

We estimate an extra standard deviation parameter for each index of abundance, to acknowledge the uncertainty in each of those, and it actually allows us to not have to do that iterative reweighting, and this is something that was provided, or made available, by the SS developers. We assume a constant catchability from 1986 on, or whenever the time series comes in for the indices, and we modeled all thirty-four age classes, but we used a plus group of twenty-plus, for things like composition data.

That plus group was decided on, and we had lots of discussion about that at the research track, where it's based on the fact that the life history parameters basically saturate at age-twenty, and there's less than 4 percent of the data over age-twenty, and then we used the advice of Thorson et al., and others, to move to the Dirichlet multinomial error distribution for our composition data.

That allows us to not have to make any subjective decisions about weighting our composition data, and there's a dispersion parameter in that distribution that allows the model to estimate that internally.

We do assume Beverton-Holt stock recruitment, which causes us to estimate R0 and sigma-R and decide when to estimate recruitment deviations. Because this is a longer-lived species and doesn't recruit to the fleets until I think it's age-four-ish, four or

five, the recruitment deviations were not taken to the terminal year of 2020, and it stopped at 2017, and that's when we thought we could get the best signal from our compositions, and then we fix it at the average after 2017.

I think the steepness was one of the biggest things that we discussed, besides the age data, during the CIE review, and that's because it was not estimable during the model-building process. It kept going to a bound, and so, when that happens, we look at the likelihood profile, and we still didn't see a minimum, and so then what we do we look at other species, other assessments, to see if it can be informative about steepness for the species that we're looking at.

At the recommendation of the reviewers, there's a source called FishLife that we could take into account that looks at -- I guess we focused on congeners, but then the South Atlantic model was being run at the same time, and it did have an estimable steepness, and so the reviewers recommended that we used a weighted mean of the species in FishLife that were selected for this and then the South Atlantic estimate of steepness. At the recommendation of the review workshop panel, we fixed steepness at 0.69.

For length-based selectivities, we thought that we should use length-based selectivities for our fleets and surveys, based on the data that we had, and we also have retention functions that we have to identify and put time blocks on, and so, for commercial vertical line and commercial longline, the video index, and our reef fish observer program, we assumed a logistic selectivity, and we assumed a dome-shaped selectivity for our recreational charter private and our recreational headboat.

Those decisions have not changed since the research track, but they were informed by the composition data, what the mode, or the majority, of the fish were, and we also looked at catch curve analysis, to determine whether -- The descending slope was quite steep, and whether that would justify a dome-shaped selectivity.

We did assume constant selectivity for all fleets and surveys, and we didn't have time blocks on selectivity, but we did have time-varying retention that accounted for those -- It attempted to account for those management regulations, and I think this is a huge thing that Skyler struggled with, because of the competing data between the state survey and -- Sorry. The state size limit and the federal size limit.

The commercial fleet, we places four time blocks on that fleet and its retention and three on recreational, based on the regulatory

history that I showed you before, and then there's a schematic on the bottom-right for you to take a look at, for what those years were and what the overlap between commercial and recreational was.

Using time-varying retention, we're assuming all fish caught before size limits were in place were retained, with the exception of that recreational charter private. We've got discard data before 1999, and so we did assume a separate block. The estimating of the inflection points and the width parameters was possible, and she did attempt that, and was successful.

Then the asymptote of the retention -- It was different for the two sectors. For commercial, we assumed full retention above the size limit until the implementation of the IFQs in 2010, and then, for recreational, we estimated the asymptote, since not all scamp are retained, like for instance if there's a bag limit. Here is model results, and I will go on, unless somebody has a question about the model configuration. Okay.

Here is the model-estimated selectivities. We do have three of the parameters that had high uncertainty in our base case for the operational come from the headboat selectivity, and it's the descending limb, the start logit, and the top logit. The top-right, you can take a look at each of the fleet's length-based selectivity, and then, on the bottom-right, is the derived age-based.

The headboat is the light green, and you will see it has that slightly strange shape, but all of those were estimated, and seemed estimable, but they had high uncertainty, and, again, headboat is an incredibly small proportion of the total catch, and so we didn't see this as a large problem or see the need to investigate more, because of the really small nature of the landings overall.

CHAIRMAN NANCE: It does have the same trend as the private charter.

DR. SIEGFRIED: Yes. This is the fit to the landings. We would assume, because a 0.05 error was assigned to the commercial fleet pre-IFQ, and then, post-IFQ, it was even smaller, that we should get a pretty good fit, and we did. Here, you can see, in a few spots, the dashed line, on the top-right, as we expected, is slightly different from the input data.

The bottom-right, however, the uncertainty was fixed at 0.3, which is actually slightly larger than the mean of what we were given, but it was consistent with the review workshop, and we do think that the recreational data are less well known. The dashed line,

in the bottom-right, you can see it fits the headboat fairly well, but, again, that's really small, and it does jump around quite a bit in different spots compared to the recreational charter private in teal.

We did explore, or Skyler explored, the many different runs exploring different recreational errors during the research track, and this is what was decided upon by the assessment team and the reviewers. The general trend is correct. The dashed line follows the general trend of generally increasing landings, but it doesn't follow the year-to-year variation.

Here's total discards, and this is, again, before applying discard mortality. The top-left is our vertical line, and it's still overestimating a bit in 2003 and 2005, and she was just not able to -- None of us were able to get those three years tamped down, and it's got to be some sort of combination of other issues in the model, although it's still within the error bounds, and so we didn't chase it further. The top-right is the same issue with those three years for commercial longline.

On the bottom-left, we do have highly-variable discards that are provided for charter private, and the estimation did not always follow some of the largest values, the input values, that were provided, and then, on the bottom-right, the really small number of expected and provided headboat discards is plotted there.

Then, again, as I stated, we used the Dirichlet multinomial for our likelihood for composition data, and, in general, if something is approaching five, that means the model wants to give it a lot of weight, and so those were the issues that we saw here.

The values, say for commercial lengths and recreational lengths, the model wanted to go near the bound of including those, you know putting the most weight on those inputs, and it was the lowest for the reef fish observer program length data and the fishery age comps, and then what this does is the adjusted sample size converges to the input sample size at those large values, and so, basically, it's giving it the full weight of the data and not decrementing its value at all in the likelihood.

On the top-left, these are our retention curves, and the top-left is our vertical line, and the bottom-left is longline. There is a little bit of difference in what you can see for the retention for longline versus vertical line, and it's a slightly smaller inflection point for vertical line, but they are pretty similar.

There is a little bit more difference in the selectivity between

the two fleets, and then I've always found these plots hard to read, on the right, and I don't know about you, but this is supposed to show the time blocks. We've got to come up with something better for that.

Here, I've got the commercial vertical line composition patterns, the fits in the residuals, to show you. The closed circles are the positive, and so that's where observed is greater than expected, and the open circles are the negative, and that's where observed is less than expected, and so you can see there are some patterns in the residuals.

In the bottom-right, you can see, depending on the time block, and depending on what size limit you're following, you could see some bunching up of those closed circles on the federal size limit, and in earlier years on the Florida size limit, but there is kind of a hodge-podge of what's happening sort of in the mid to late 1990s there in the middle, especially before the federal size limit comes into place. In general though, these are quite small residuals. If you look at the legend at the top, it's minus-two or plus-two, and it's quite small.

Then on the left is the discards, and the IFQ is indicated by the vertical black line, and then the federal size limit by the horizontal blue line. There's not a ton of pattern to chase here, and we didn't see any reason why we needed to throw in another time block to chase the discard residuals early, between 2010 and 2014, but you can see some aggregation of those closed circles there before 2014. In general though, these are quite good.

Here's the same for commercial longline. The closed and open are still the same. The colors of the lines are still the same, and so you can see similar patterns between the Florida size limit and the federal size limit here for longline and the retained catch. Where the two lines overlap, you see some patterning of those closed circles, and also towards the end of the time series, but we didn't see -- We didn't have many discard data, but we didn't see any pattern in the discard data, and the legend here shows these were a little bit larger residuals, where the largest is eight and the smallest is negative-eight.

Here is the nominal age compositions for the commercial fleets, vertical line on the left and longline on the right. You do, again, see some misfit of our age compositions here, which is something that the reviewers brought up. We seem to either be able to fit the length composition perfectly, and then compromise a bit on the age comps, or do both not so well, and so, since the lengths are actually observed, we did tend to fit the length comps

better, and so you will see there is some patterning of misfitting here, but, again, the scale is quite small, and it's negative-two to two. I would say, on the vertical line side, it's not as obvious, the patterning, as it is for the longline.

Here is the retention curves for our recreational fleets, with the charter private on the top-left and the headboat on the bottom-left, and, again, the headboat retention, we had some difficulties with the parameters for that, for that curve, and so there were three parameters that were quite high CVs. The charter private selectivity shows some selectivity, out basically to all sizes, but a peak selectivity around forty centimeters, and, as Jim stated before, they have similar patterns, but they're just not both estimated as well, and then on the right is the time blocking.

Here is the length composition for the charter private fleet, and we do see some patterns evident on the right, although I don't think these are as evident as they were for the commercial fleet, and there's just some misfitting of the largest individuals, and so perhaps, with the curve dropping down a bit for this, it does miss some of those largest individuals.

With the discards, there's not really any patterning evident, and here's the headboat length composition, discards on the left and the landings on the right. There is not any pattern of note for the discards, but you do see a very interesting headboat pattern, and this is something that Skyler stated throughout this process, is that, because scamp is usually not targeted, especially for recreational folks on a headboat, you're going to get a lot of influence of the behavior of going after other species, and so we're not sure what time blocks to really apply, especially for something like a headboat, that is usually incidentally caught.

Here is the age composition for the recreational fleets. These are nominal time series, and we do see larger residuals for the younger ages throughout the time series, but especially from 2013 to 2020, and this is for both of the fleets. We need to get a better understanding of how these regulations for other species -- - How the regulations for other species affect the spatial distribution of each species in the fisheries and then how the targeting changes through time, but this is the best that we could get done with the information that we had.

On the left are some of the best length composition fits you're ever going to see, frankly. The green line, and, of course, Skyler doesn't think they're good enough, but that's why they're so good. The green line is the fit, and the shaded area is the input data, and then on the right is the age compositions, and so the tradeoff

that was noted during the review process for the research track is that we can't quite fit the age compositions as well as the length compositions, and, if we compromise the length compositions, we don't fit either of them well, and this is a big improvement in what Skyler was able to get done for the age compositions during the research track. In general, the modes are pretty accurate for the age comps, but the length comps are fantastic.

I know you can't see from where you're sitting, but, maybe on your screen, you can see the adjusted N is the effect of those Dirichlet parameters on the sample sizes, and so there's a sum of the sample sizes input is the top-right of each cell, and then the bottom is the way that the likelihood affected the sample size.

Here's the fits to the indices, and we did discuss, quite a bit, the reef fish observer program vertical line survey, vertical line index, during the research track, because the model just seems to want to ignore it. We even took it out, and we tested the model, to see if we should take it out, and re-investigated how it was standardized, and we had a large discussion about it, but it does have -- In the diagnostics, it has the largest RMSE of all of the indices.

The reviewers recommended that we leave it in, because it was recommended by the data workshop to leave in, and I think, if this was to go back to the drawing board, it might get thrown out, but, as you can see, the model is not paying much attention to it, and it's focusing on the other indices and other data in the model, and so, on the top-left, we have the pre-IFQ commercial vertical line, and it's not fit especially well, but it is fitting better, and it has a lower RMSE than that reef fish observer program vertical line.

The top-right on your screen is the headboat, which has the lowest RMSE, and it seems to be fitting the best of the indices, and then the bottom-left is our combined video independent time series, and that's fit quite well as well.

Here's all of the information for recruitment. In general, we've got a pretty high recruitment in 1999 and 2001 estimated in the model. The bottom-left is those age-zero recruits by year, and on the top-right is our stock-recruit relationship. We're assuming a steepness that's fixed, and this is why we weren't able to estimate steepness, because we -- I mean, I'm not sure how you would estimate it with that cloud of points. There's not much shape to it, and so I can see why the model was having trouble with that.

The bottom-right is our main recruitment deviations during the main time period from 1986 through 2017, and, like I mentioned before, the decision to fix those deviations -- Well, fix the recruits at the end is because we didn't have -- We didn't have an index that necessarily had recruitment information, and the time -- The age at which the species basically recruits to the fishery is such that we thought that we needed to take it back a few years, and so 2020 is the terminal year. You see that four years are fixed here, but it's actually three years, because 2021 is a projection year.

Overall, the parameter values are on the top-left for you, along with their CV, where appropriate, and so the R0 value, the R log of virgin recruitment, is listed there with a really small CV. At the bottom is our sigma-R, and then steepness doesn't have a CV, because it's fixed, and then we have our estimate of virgin recruitment and arithmetic space.

Here is the biomass and the numbers-at-age plots, and this is just to -- Those bottom ones, that sort of look like a 1980s painting or something, they're trying to show the movement of cohort through the years and the biomass-at-age, and so the top-left is our spawning stock biomass, with the uncertainty, and the top-right is our unexploited equilibrium value for total biomass, and then we have our females on the bottom-left and our males on the right.

Here's the measures of fishing mortality that are estimated from the model. The initial F, as I described, it starts in 1986, and so initial F -- It was unexploited, and so we needed to estimate that initial fishing mortality, and then it's separated by fleet here, and so we didn't estimate headboat. It wouldn't estimate. We estimated initial Fs for the vertical line, longline, and the charter private, along with its uncertainty in the parentheses, and then we show, in general, what you could probably infer from looking at the landings, that, in the more recent time period, the recreational charter private has the largest exploitation rate, and, again, this is the three-plus-year-olds, compared to total biomass.

In the beginning of the time series, the exploitation rate was largest for the commercial vertical line, and then, on the bottom-left, it shows you the summary of fishing mortality by year. Okay. are there any questions about the model, before I go through diagnostics? Okay.

Here's the jitter analysis that Skyler conducted, and it shows that no runs had a lower negative loglikelihood than the base, which is what you want to see for the jitter. It was a 10 percent

jittering of the starting parameter values, and there are very few parameters in the model that are fixed, and so we do expect some movement, based on that jittering, but we just don't want to see anything that's a lower negative loglikelihood, and we want to make sure we've found the best solution, overall solution, and that's what we found.

The majority of the runs result in similar trends, and you can see, in the top-right, there's only a few of the hairs, so to speak, that are deviating from that general cloud, indicating the SSB over SSB0, and that's also good. We don't want there to be a whole bunch of errant time series in there, and, of the hundred runs that Skyler did, we saw that the same likelihood was only found in 5 percent of the runs.

This is something that should be considered as we do projection analyses, or, as we update this. It might make sense, if we see the model moving more than we want, for us to fix more parameters, but we had a discussion with the reviewers about this, and it's really always better to characterize uncertainty, instead of falsely assume certainty by fixing too many parameters, and so that's basically what Skyler has done for this model here.

The total jitter that you want to keep an eye on, is this top -- This is the total, in that there's nothing lower than that block, and that's the most important takeaway here.

One of the other TORs for the operational assessment is to reevaluate the fleet-specific gear selectivity and retention, and so our base model retained the flexible model structure as our research track review workshop base model, and, like I stated, it highlights the uncertainty within these parameters, but we also did find the best solution, according to our diagnostics, and the sensitivity run that used priors, or fixed problematic parameters, led to nearly identical model results, and much improved jitters, and so we really just think that's a false sense of model stability, and we think that the parameters that we've estimated here are the best we could do without underestimating our uncertainty.

Here is some likelihood profiling, and this is for the virgin recruitment, and the thing to look at here, in the bottom-left plot, is the dark line, the black line with the circles, and that's the total likelihood that uses all of the likelihood components and tries to find a minimum, and our model did find a minimum at that 7.35, and so, in general, this is a scaling issue, if we find the wrong R0, as you can see in the top-right, but the model that Skyler has completed here is the best solution, according to this

likelihood profile.

This is the recruitment variance, and this is one is a little naughtier, but it does come up with a decent estimate, based on the total curve, that matches the base run, and, as you can see in the top-right -- I would be more worried about it if the top-right was looking more hairy, but those are really consistent results there for the spawning stock biomass or the SSB over SSB0.

This is the initial F likelihood profiles, and many data sources show that the minimum is close to the model estimate for each of the different fleets here, and so what she's trying to demonstrate here is that the total line was actually quite flat, depending on which fleet, but, if you zoom-in, you see that the model estimate and the likelihood profile minimum are very close to each other, in the thousandths place. Something else you can note, if you're interested, is the lengths and ages like to contradict each other in all of these profiles.

Here is the likelihood profile for the von Bertalanffy parameter, and this also looks like a scaling issue, on the top-right, where, if you end up with different values, you're going to end up with a scale difference, and it doesn't look like there are different pairs that are off doing weird things, and this is just a scaling issue, and so we were confident in the estimate of K as well. The same goes for L infinity, but the profile looks even better for L infinity, and so Skyler did a lot of diagnostic work, to see if all of these parameters that were free were estimating well, and it looks like, in general, they are.

Here's the length at Amin, and that's an even nicer curve. On the bottom-left, you can see that sharp minimum, and so that's the definition of all of the uncertainty around the estimated parameters.

Then the retrospective bias is something that came up during the review process as well, and retro bias falls within the acceptable thresholds for long-lived species if it's somewhere between negative-0.15 and 0.2, and there is the citation from Hurtado et al., and all of these fall within those acceptable ranges.

The top-left is the spawning biomass peel, and, by peel, I mean, each time you take off a year, and then the top-right is the spawning biomass, and the bottom-left is fishing mortality, and the bottom-right is just zoomed-in on the fishing mortality from 2005 to 2020, to show you that that's the one that deviates the most. However, the Mohn's Rho is within an acceptable range, being under 0.2, and it's at 0.14, and these values were higher for the

research track, and so Skyler got everything in acceptable ranges.

Another diagnostic that was recommended during the review was to do this Carvahlo et al. package and to look at the non-random patterns in residuals events, which is basically the runs test by index, and so you can see that, for some of them, we do have -- Like, for the commercial vertical line, we have a red flag that says it's not fitting as well as the model would like, and then, like for charter private, the ages are off for headboat, and the lengths are off, and, for commercial vertical line, the lengths are off, and so there still does seem to be some poor predictive skill in some of these indices, particularly the reef fish observer program, which, like I described, we weren't sure whether to leave it in or not, and so we weren't surprised to see that that didn't have good predictive ability.

Then here's the sensitivity to assumptions about ageing error matrices, which she actually shows that, when you include the curvilinear bias in the standard deviation with no error in expert ages, versus when you don't, the blue, the red, and the green line are all very close to each other, and so our assumptions about the ageing error matrices don't seem to have a large negative effect on what our total model estimates would be.

Here's the jackknife runs that she ran, and this just pulls out indices, one-by-one, to decide which ones are most influential on the derived quantities, and so the base run is in blue, and it looks like the removal of the headboat index, and all fishery-dependent indices, leads to some divergence in the beginning of the time series, but not necessarily as much in the end, but, I mean, it does change it a little bit, but, at the beginning, it's a larger difference, particularly for spawning biomass.

The conclusions that we could draw from this is that this operational assessment base model -- This is what we're proposing, based on the topical working group and all of the recommendations from the reviewers, and we think this incorporates the best available data, addresses all of the TORs, and then we've fixed a number of the modeling issues that were evident in that research track, and then our diagnostics show an improved model, with better fits than what was reviewed at the research track review workshop.

Here is the TORs and which projections were expected, and you all helped write these, and so I think you know what's there, but our MSST is 75 percent of the MSY, or SSB MSY, and we were expected to run an optimal yield and an MSY, or MSY proxy, projection.

Then we weren't sure about optimal yield, or about the proxy, and

so Skyler looked into Amendment 48 for those values, and found, in the shallow-water grouper section, that the MSY proxy should be 30 percent SPR, or F 30 percent SPR, and optimal yield should be 90 percent of the FMSY proxy, and so that's what she ran with.

Here is the settings, and this is the table that we've been trying to provide for that transparency of what's in the projections. The relative F is this average from 2018 to 2020, and the selectivity is assumed average from 2018 to 2020, as is retention, and so that's carried forward in the projection, and we keep our Beverton-Holt stock-recruit relationship, and then we entered these interim landings, as defined here, either recommended or that we got from our data providers, for 2021 or 2022, and the 2022 used a three-year average of 2019 to 2021. There was no allocation ratio, and this is a new assessment.

Here is the MSRA table that Skyler put together that shows all of the key quantities and status determination criteria. Based on this, we see the F current over MFMT is below one, and so there is not overfishing occurring, and the SSB current over MSST is 2.15, but, over the MSY proxy, it's 1.62, and so it's above one, and so we're estimating no overfishing occurring and not an overfished stock.

Here's the same information on the left plotted, and it's one of the Kobe plots, and you want it to be in the green, so you get what you want, because it's all in the green right there, for the entire time period from 1986 on. The top-right is the spawning stock biomass, if we take it out the hundred years, to find out, you know, what that benchmark should be, and it shows the assessment period spawning stock biomass, but then, once you fish at the FMSY proxy, it takes it down to that 30 percent SPR, and, on the bottom-right, is it fishes at F 30 percent. This is just a check to make sure that those things are working properly.

Here is the OFL and OY projections, in million pounds gutted weight, along with other quantities of interest. Because the stock is not overfished and not undergoing overfishing, this is significantly higher than the current landings in recent years, and the OFL, obviously, is trying to fish the stock down, and it's not our usual what we're used to seeing, where we're trying to let the stock go back up or rebuild a bit, and so this is quite a bit higher than the current landings taken. Then the OY is 90 percent of the FMSY proxy, on the bottom.

CHAIRMAN NANCE: On the previous graph, is that what it's trying to accomplish? We're down fishing at one level, and the projections take it up, saying we can now start fishing here, where

we should be?

DR. SIEGFRIED: I don't know about should, but I know that --

CHAIRMAN NANCE: Where the model says that you can go to.

DR. SIEGFRIED: Yes. If you were to take the FMSY proxy as the value to fish at, that's what it's doing, is it's fishing at that, for the bottom-right plot, and the top is taking it down to FSPR 30 percent.

CHAIRMAN NANCE: Now we're sitting in there, and the model is saying you're welcome to go up to this point and bring it down.

DR. SIEGFRIED: Yes, and, if that's your goal, the model says this is how it's done, yes.

CHAIRMAN NANCE: That's what my thinking was, and I just wanted to make sure.

DR. SIEGFRIED: Yes.

DR. POWERS: That OY, is that in the amendment, that it's defined as 0.9, or is that -- Where does the OY come from?

DR. SIEGFRIED: That's what we found, when we looked into it, but I don't have like a page number. I can find that for you.

CHAIRMAN NANCE: John.

DR. FROESCHKE: I worked on this amendment for years, and so what happened was, historically, the OYs were approximately 75 percent of FMSY, and, at one point, Clay and Shannon and others, I think, communicated to us that it was computationally more work to do it that way, and it would be preferable to just adopt a scalar as the MSY, and so then the Science Center went and did some work to approximate what would be a calibration, if you will, to go from the simpler scalar to the F-based MSY, and so, in this case, 75 percent FMSY was equivalent to this 0.9, approximately, and so we went through this in a previous SSC meeting, and we could probably dig it up, but that's -- Essentially, the old way and this way are quantitatively approximately equivalent. However, this way just requires the MSY times a scalar and you're done, and so there's no additional work, going back.

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

DR. PATTERSON: So you're saying that the scalar applies to yields

and not fishing mortality rates.

DR. FROESCHKE: That's right.

DR. PATTERSON: When I look at the projections, and I see the tables, the Fs, for the table below, which I assume is -- It's the OY table, and the F there is 0.9 of the F of the OFL, and the yields -- The ratio, I don't think, is 0.9, and so I was confused in looking at that.

DR. SIEGFRIED: We did what's on the screen, the 0.9 times the F, and so this -- We always need to do projections after we show you things, and so, if we have to do another version of it -- Go ahead, John.

DR. FROESCHKE: I'm remembering, and I think there was one other issue that this was aimed to fix, is that, for certain stocks in rebuilding plans, it was possible, using the OY-- The F times MSY approach before, that the OY could actually exceed MSY, in some cases, for short periods of time, which doesn't make sense, and so that was the other reason we went with this.

CHAIRMAN NANCE: Will.

DR. PATTERSON: The way this reads is the optimum yield is equal to 0.9 times the fishing mortality rate MSY proxy, and so what it should say is OY is equal to 0.9 times the yield at FMSY.

DR. FROESCHKE: It's my understanding, for example, if MSY, the yield, was a million pounds, the OY would be 900,000 pounds.

DR. SIEGFRIED: Well, that isn't what we did, and so we would have to make that correction.

CHAIRMAN NANCE: Yes, because this is simply, like Will is saying, is what's in the table is F is 0.171, and the new F is -- Well, the OY F is 0.154. Will.

DR. PATTERSON: Because this spawning stock biomass is above BMSY, if you actually applied the 0.75 times FMSY, you're probably going to end up with a value around 0.95 or 0.98 and not 0.9.

CHAIRMAN NANCE: Doug.

MR. GREGORY: Thank you, Mr. Chair. This issue came about at the January 2020 council meeting, where I was representing the SSC, and so it came back to the SSC during that year, and, in our discussions, I think, if my memory is right, it was Will that

equated that 75 percent of F of MSY was about equivalent to 90 percent of the yield, and so we went with that, to accommodate the Center's desire to do something simpler, but that would be equivalent with what we've been doing in the past. Thank you.

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

DR. CRABTREE: Well, what throws me off with it is we have these things in terms of fishing mortality rate, but OY is a yield, and it's not a fishing mortality rate, and so 90 percent of the fishing mortality rate would be FOY, but that's not the way it's --

CHAIRMAN NANCE: I think it needs to read "the yield at FOY". The text should read that. It's the yield at taking that change in F.

DR. BARBIERI: You see -- I mean, I can see why Skyler ran it like this, because, usually, when we use -- The previous definition of OY, right, is being the yield at 75 percent of FMSY, right, and so I think she just followed the same rationale, not really linking to what the language was and what the Center was trying to do.

CHAIRMAN NANCE: John.

DR. FROESCHKE: To my knowledge, this would have been the first assessment that actually incorporated this guidance, because, once we had 48 in, a lot of the assessments that we've seen, even in the last couple of years, were based on TORs that were developed well before that, and so they didn't include this in it.

CHAIRMAN NANCE: Katie, please.

DR. SIEGFRIED: I didn't catch it either, and so I didn't realize what the differences between the two things are, but I can certainly rerun those, and we can provide those and word it correctly.

DR. CRABTREE: Let me see if I understand it though, and so OY is supposed to be 90 percent of MSY? All right, and then FOY is equal to some fraction of MSY?

DR. FROESCHKE: Yes, but there really isn't an FOY, and it's just a yield, and so I don't even think -- There's nothing to rerun, and you just take the yield at MSY and multiply that by 0.9, and you would have it.

DR. CRABTREE: Okay. I've got you.

DR. SIEGFRIED: She did list FOY here, but then, on the previous

slide, we listed OY, and so we'll just correct those, so that they're consistent.

MR. RINDONE: Slide 76 has the OY for --

DR. CRABTREE: It really wouldn't be that, because what John is saying is OY is 90 percent of MSY, but the F would be something else, I assume.

DR. SIEGFRIED: It shouldn't -- It's not OY equals FOY times -- Those are two different things, and so we'll just try to -- We'll take what you all would like us to do and do that and make sure everything is consistent.

CHAIRMAN NANCE: Luiz, please.

DR. BARBIERI: John, just to clarify, so you said that we actually reviewed, right, this point here at some point, because I don't remember this at all, and this is an unusual, right, way -- I think we did, right?

DR. FROESCHKE: Yes, I think we did, and we'll have to dredge it up. I know Shannon gave a presentation, and we talked about it, and I brought it up to you all's attention, and so I will see if I can dredge it up in the archives when we take a break here.

DR. CRABTREE: I think the problem, Luiz, is you don't have enough acronyms in here.

CHAIRMAN NANCE: Sean.

DR. POWERS: I agree with Luiz, and I remember the discussion that Shannon had with us that this would be an easier way to accomplish the same thing, but I don't remember us diving into the details, but, again, I might be wrong, but, Ryan, you said it's correct on Slide 76, or it's not correct on Slide 76, and so it should be --

CHAIRMAN NANCE: Let's bring up the slide, so we're all -- Is this slide?

DR. POWERS: It's Slide 76. It's not correct?

MR. GREGORY: Mr. Chair?

CHAIRMAN NANCE: Yes, Doug.

MR. GREGORY: We can look up the minutes, and it would be March or later of 2020, but, more quickly, we could just call up the status

criteria document, and it will be in that document. It was one of the last items discussed in that document.

DR. POWERS: My thinking is that's still supposed to be 0.75, the way it's written there.

CHAIRMAN NANCE: Will.

DR. PATTERSON: If you -- Given where the stock biomass is, if you actually multiplied out 0.75 times FMSY, you would return a yield that was greater than 0.9 of the yield at FMSY, because the biomass is above BMSY, and so I think just the simple solution here is -- Based on what John said is in the document, it's just 0.9 times the yield at FMSY, and so, instead of calculating it based on the F, you just calculate what the yield at FMSY is and then multiply that by 0.9.

CHAIRMAN NANCE: Yes. Does that sound right, Katie?

DR. SIEGFRIED: Yes, and we didn't have the code we have now when Shannon had that conversation with you all about what's easier, and the F in that table then, if we used Will's suggestion, would not -- I would have to calculate that some other way, but we could just use the OFL in the table and multiply that by 0.9 and get the OY, based on what you all have been saying, but I wouldn't have the Fs, right offhand, if that's important.

DR. PATTERSON: Since all the MSRA thresholds are in yields, why do we need it?

CHAIRMAN NANCE: I agree. It should be a real simple calculation, I would think. Okay. I guess we can go back to the presentation. On the table before this, Katie, it's pretty straightforward to correct that table? Okay. John.

DR. FROESCHKE: We put that text up there, that little paragraph, and I'm not sure if you all got to see it, but that top paragraph there has essentially a brief summary and the rationale behind it, if you want to peruse that for a minute.

CHAIRMAN NANCE: Luiz.

DR. BARBIERI: John, the way you explained it made sense to me, but I was just surprised, because usually that's not the way, right, convention-wise, that we use to define OY, and what you said aligns with this, and is correct, but I was just surprised to hear that it was, you know, done this way.

CHAIRMAN NANCE: Roy.

DR. CRABTREE: So, if you have a stock though where the biomass is well above the biomass at MSY, then the yield at fishing at the OFL is going to be above MSY, but we're saying that the OY is going to be below MSY, even though there is all of those fish, and that seems a little peculiar, to me. We're actually saying, at high stock levels, we're going to fish at a lower F than we could, right?

DR. BARBIERI: Well, it's just saying -- It's just, really, forcing the point that fishing at OY is a reduction from MSY, right, as defined, and so I can see we found a way, with Shannon's suggestion, to maintain that constant, that OY is going to always be a reduction from MSY, as defined in the Act.

DR. FROESCHKE: Luiz is correct, and, in the document, one of the things that comes up is that OY is a long-term equilibrium value, and so it wouldn't necessarily make sense, long-term, that you would be above this MSY, if you were doing this, but you also are correct. I mean, in the actual nuts-and-bolts of this, there will guide that catch levels, and it won't directly be affected by the OY.

DR. CRABTREE: As long as we're clear that we're talking about a long-term average OY and we're not talking about ABC equals OY kind of things, which I know we've done in the past.

CHAIRMAN NANCE: Okay. Thank you. Will.

DR. PATTERSON: So, that being the case, and we're really talking about an equilibrium yield, maybe it's best that we don't even put it with the OFL table, because we're not using that as a projection to base catch advice, right, and we would still apply our P*, presumably, to produce catch advice, based on the OFL estimate, but the OY calculation is really just that one value, which is the equilibrium OY.

CHAIRMAN NANCE: Luiz.

DR. BARBIERI: Well, yes, Will, I agree, unless, right, the council decides that it wants to set catch level at that OY, and it has that prerogative, right?

DR. PATTERSON: Sure, but that wouldn't -- That doesn't mean that we have to say this is what our advice is for setting the ACL, which is where this table is headed.

MR. RINDONE: Well, there's a lot of other things to consider than just that, because, right now, scamp is part of a complex, and so it's part of the other shallow-water groupers, and there is three -- Well, I guess, there's scamp and yellowmouth, but there's two other species that are also included in that complex, and so, if you're going to be recommending catch advice for scamp and yellowmouth combined, then you need to think about how you think that should be addressed in the grand scheme of how this complex currently functions, and so is that complex going to be split, to where you have the scamp and yellowmouth catch limit.

Then the remaining other shallow-water groupers would need a catch projection done for them as well, based on the information that's available for them, and there is some confidentiality issues that we would probably have to sort through for the old ACL/AM Amendment data that were used to come up with that, but we can work that out.

It's yellowfin and black grouper. Yellowedge is -- I don't know what's going on with that one, because that's the Amendment 54 one, or 44, and so yellowfin and black grouper I think are the other two that are in the shallow-water complex, and black grouper has some meaningful landings, and so you guys should think about what's going to happen with this complex, what's going to happen with how catch limits are going to be recommended from that point forward, and so is scamp going to continue to be included in that, or is it better that it's broken out with yellowmouth into its own thing, since now we have more explicit information about these species from this assessment.

Basically, there's a lot of things to think about, probably, before you guys finally narrow down on the ultimate catch advice going to the council, and there's probably a lot of this needs to be done, and this needs to be done, and these are the catch limits.

CHAIRMAN NANCE: Roy.

DR. CRABTREE: Ryan, the bulk of the catch is commercial, right, or it's switching to rec now? I guess I'm trying to figure out what's constraining the catches right now. The rec side, I'm assuming pretty much nothing, and they have been closed recently?

MR. RINDONE: No, they haven't closed. I mean, if we're thinking about it in terms of how the fleets function, scamp are going to be found in deeper waters than say red grouper and gag, and so there's a little bit of additional knowledge that's probably required.

DR. CRABTREE: That's fine, and the shallow-water grouper portion of it is limited by the number of pounds of shares the IFQ guys have, right, or are they catching up all of the shallow-water grouper quota?

MR. RINDONE: I can look back on it, but, typically, no, I don't think they catch all of it.

DR. CRABTREE: Because I guess what I'm thinking about is so this indicates the ABCs could go up quite a bit, but would they actually catch it?

MR. RINDONE: The current combined commercial and recreational shallow-water ACL, if you will, is about 710,000 pounds, gutted weight, and 525,000 pounds of that is dedicated to the other shallow-water grouper IFQ program, which includes black grouper, yellowfin, yellowmouth, and scamp, and then, of course, you can double-dip on scamp with the deepwater grouper allocation if the shallow-water has all been caught, and so like you can still land scamp as a deepwater grouper if the shallow-water grouper -- If that 525,000 pounds is caught.

I don't have the information in front of me about like the history of the percentage of that that's been landed, but, in looking at in the past, and maybe Assane knows off the top of his head, but I don't think it's typically maxed out, and so this would result -- If scamp and yellowmouth are kept in the shallow-water grouper complex, then this would change that catch limit, but, the way that the information is provided right now, it's for scamp and yellowmouth independent of everything else.

CHAIRMAN NANCE: Okay. Will, to that point?

DR. PATTERSON: Well, actually this isn't to that point.

CHAIRMAN NANCE: John.

DR. FROESCHKE: Well, I'm just thinking, and I don't think that we could just integrate this new information in that group unless we did some other work, because you've got the currency mismatch.

CHAIRMAN NANCE: Yes. Okay.

DR. FROESCHKE: So just something to think about.

CHAIRMAN NANCE: Will, is your comment going to take us in a different vein?

DR. PATTERSON: Not really.

CHAIRMAN NANCE: Okay. Go ahead, and then we're going to take a break.

DR. PATTERSON: I just wanted to say that, before we get too far into the implications and projections stuff, that I would just like to congratulate Skyler and the rest of the folks at the Center for the tremendous job they did with the research track and operational assessment for scamp.

Heading into this, scamp was thought to be a data-moderate species, and there were concerns about having this be the first research track, and would there be enough here to really -- You know, enough meat on the bone to do a full-blown assessment, and we've seen, by the diagnostics and the fits, that how tremendous the model fit the data, and I just think, you know, they should be applauded for the work they did on this, as well as the folks in Panama City who had to go back and do some ageing, and there are a whole lot of issues there that you can read in the report, but they also really stepped up to the plate here.

CHAIRMAN NANCE: Thank you, Will, and I agree. I mean, this has really been -- I mean, it's a great model. The diagnostics and everything were really well -- Anyway, let's go ahead and take a break until 3:15, and then we'll continue this discussion.

(Whereupon, a brief recess was taken.)

CHAIRMAN NANCE: Okay. We'll get ready to start, and I think, Katie, we're probably done, right, with presentation? Okay. Go ahead and -- We'll go on with that, and then regroup and see where we want to go from here.

DR. SIEGFRIED: Okay. Thank you, Mr. Chair, and so the only -- I think this is the only thing that we have left to discuss, is just if there's an issue with the projection settings, and so what Skyler did is sort of the standard of what we've been doing for the last few assessments. Are there any concerns over the 2018 to 2020 estimates derived from the spawner-recruit curve, or is there any reason to use the recent average to set the benchmarks?

We didn't think so, looking at the time series of recruits, and we didn't think we were necessarily in some sort of recruitment failure, or recruitment boom, but, because of this need to be more transparent about our projection settings, we just wanted to bring this to the SSC's attention.

CHAIRMAN NANCE: Jason.

MR. ADRIANCE: Thanks. This is the only thing I saw in the whole thing that gave me a little pause, and just those recent years seem a little optimistic, given that trend there, and I would just be interested in a little discussion, but that's really the only notes I had.

CHAIRMAN NANCE: Will, please.

DR. PATTERSON: I think, when you look at the recruitment deviations plot, it seems to be more of a -- It kind of stuck out to me a little bit more than this particular one, just because there's that early time period when the recruitment deviations are below the fit, and then the middle time period, when they're above, and then the last ten years or so have been below again, and, you know, there's not enough time series here to really perhaps infer anything about the ecosystem.

However, in recent years, the stock has been moving back down toward SSB, yet F is estimated to have been going down, and so all that is being driven by lower recruitments in recent years, and so, because of that, it may make sense to use a more recent time series than the full time series for mean recruitment.

CHAIRMAN NANCE: Luiz.

DR. BARBIERI: Thank you, Mr. Chairman, and, to Will's point, I think it would be good to look at that, and, Jessica, can you put Slide 57 on, and so, Will, isn't that what you're talking about, the bottom-right there, when you look at how, all of a sudden, you have those four years of recruitment there, and it's understandable why we arrived at that, but I think that's why you're opening up that question, right, to the committee, to say, okay, how do you want to treat this, and this is a choice we made, but, you know, we are open to other suggestions on how to handle this, if you have concerns.

CHAIRMAN NANCE: So are there recommendations? What should we use for recruitment for -- Michael.

DR. ALLEN: Thank you, Mr. Chair. I didn't have a problem with doing it this way, just because of the stock status projection of it not -- It certainly doesn't appear to be from a recruitment overfishing standpoint, and so I think using the stock-recruit average for the last four years is reasonable. Honestly, I think you could justify it either way, but I didn't have a problem with the way they did it.

CHAIRMAN NANCE: Okay. John.

MR. MARESKA: I think we need to look at a longer time series, because, if you look at all the indices of relative abundance on Slide 56, all of those are in a downward trend too, and so that leads to the concerns that Jason and Will have raised.

CHAIRMAN NANCE: Katie.

DR. SIEGFRIED: So the issue that we wanted to bring up I have to be more specific about, and so there is the assumption of recruitment to estimate the benchmarks, and that's pulling from the stock-recruit curve. This is, if you recall, the greater amberjack, and we've used the stock-recruit curve to set the benchmarks, but then, during the projection time period, we assumed a lower recruitment, and so those are two different things, recent low recruitment, and so I don't want to confuse those two things, or be confusing about those things.

Skyler's specific question is, is there a reason to use a recent average to set benchmarks? I don't think so, or we didn't think so, and that's what -- She has used the stock-recruit curve to set benchmarks. However, it sounds like you all want to have discussion about recent recruitment for the actual projection time period, and we have that, the code that we've developed for amberjack that we're using now, which we could consider that, if that's what the committee requests.

CHAIRMAN NANCE: Okay, and so there is those two issues. Discussion? Luiz.

DR. BARBIERI: In that case, just to raise that point for committee discussion, I tend to feel, looking at the graph here and looking at the deviations that were in the previous figure, that, yes, using the stock-recruitment relationship, estimated recruitment, for the benchmarks, but then, for these short-term projections, they should be better in line with what we are observing, right, more recently, and that, to me, indicates that recruitment has not been at that level, or that would not be my expectation, and I wouldn't have any explanation, right, for why they would be.

CHAIRMAN NANCE: That's the same logic that we used for greater amberjack, correct?

DR. SIEGFRIED: Yes, but greater amberjack had a much longer time series of low recruitment and did not have any larger recruitments, which, if you look at the deviations on Slide 57, there is one

that is above average in the recent time period, and there's only seven, or eight, low years, versus amberjack was fifteen or twenty years of low.

CHAIRMAN NANCE: Well, it did have -- Yes, greater amberjack did have that longer term of low recruitment, and this seems to be a more downward trend, and it's not leveled low, but more heading towards a lower recruitment. Mike.

DR. ALLEN: Also, just I believe I recall, with the greater amberjack, the issue there was that it had been low recruitment through a lot of different management actions that had not caused the recruitment to go back up, and so it was the idea of a regime shift kind of thing, which is not what we're talking about here, or we wouldn't think.

CHAIRMAN NANCE: Thank you. Yes. Luiz.

DR. BARBIERI: But there is a counterpoint, right? If we look at the biomass in numbers-at-age, in Slide 58, if we look at spawning stock biomass trends -- I mean, I'm trying to, in my own head, understand what would justify -- How could I explain the expectations that recruitment will jump up to a level that's more the average, long-term, or expected, for the higher level and what we would expect for the near future.

CHAIRMAN NANCE: I would use the more recent history for the projections and not the relationship.

DR. SIEGFRIED: But there's other ways to think about uncertainty for recruitment as well in the projection settings besides using a period that you eyeball as lower than the period before. Like, when we talked about the amberjack potential for the regime shift, it was -- I remember it seemed very subjective, you know, as far as which time periods we were choosing, and we tried to work with regulations, to see if we could justify something, or understand more about it, and, also, it hadn't responded to management.

This one is at a stock of -- The stock status is 1.62 relative to the SSB MSY, and it's 62 percent higher than MSY, and so there is less concern that we're not going to catch a signal in time to prevent it from going overfished, and I'm not trying to, you know, tell you all how to be precautionary or whatever, but it's just, as far as the modeling goes, we would probably be able to inform recruitment better with a little more information, instead of picking time periods based on right now.

When Skyler and the team and I all talked about this, we didn't

see a lot of reason to deviate, and we knew that we needed to bring that up with you, but there's also the issue of the fixed recruitments at the end of the time series. Those are fixed at the stock-recruit relationship, and that's never been argued, and so it's also that that's not been argued, and that's been acceptable, and that probably is okay to assume in the projection period as well, and we're just playing out all of our thought processes for you.

CHAIRMAN NANCE: Thank you. Steven Saul, please.

DR. SAUL: Thanks, Mr. Chair. I have been thinking through this, and I think we should keep in mind, I guess, different tradeoffs for each choice, and so, like projecting forward with the average four years, given that the stock is not overfished, and I wonder if we could run into issues where we've sort of artificially capped the capacity of the stock, such that, if we use the spawner-recruit relationship to project, and I haven't made a decision either way, and I'm just kind of thinking through this and providing my perspective, which is that, if we use the spawner-recruitment relationship, it will, obviously, be responsive to changes in biomass and abundance and size demographics of the population as you project forward.

I guess I'm just wondering, if we pegged it at this four-average, if we may actually underestimate the potential productivity, and I don't know if that -- Does that make sense to folks? That's kind of a question that I have, versus, you know, projecting it out using the relationship where there is a little more dynamics with respect to, you know, the numbers responding to changes in biomass, et cetera.

CHAIRMAN NANCE: Luiz.

DR. BARBIERI: Right, Steven, and I think those are good points, but I'm thinking, you know, that we will be underestimating, right, the productivity of the stock relative to what, and so the reference points are already estimated using the productivity that's predicted by the stock-recruitment relationship, and so all we are doing is trying to adjust, you know, as the stock fluctuates over time, ups and downs in stock biomass.

If we are going through a period where the recruitment is relatively low, we're adjusting the catch level, right, at those, because the idea, is this is why we use fishing mortality rates divided by biomass, right, is that so we can actually have catch levels that are proportional to the amount of biomass that's available, right, and reflect that in the recruitment.

I don’t see -- You know, I don’t see how we would be underestimating the productivity of the stock, because our reference points are still estimated using the stock recruitment relationship.

DR. SAUL: Yes, I guess that makes sense. I was just thinking it will probably then take -- Well, it will take longer or shorter to -- Well, I guess, if it’s from the terminal year, if your reference points are based on the terminal year, and, from one of the other slides, the terminal year has lower recruitment than that four-year average, and so I guess -- It makes sense, yes. There just seems, in my mind, to be a bit of a mismatch between -- Or that there could be a mismatch between the two, but I understand the point behind it. It makes sense. Thank you.

CHAIRMAN NANCE: Thank you. Harry.

MR. BLANCHET: Thank you, and so the last data that we actually have recruitment information for, if I’m correct, is about five years old, and so, essentially, everything that is being harvested this year, at least in the recreational fishery, a lot of that has been born after what I would call the data-rich, or the recruitment-informed, portion of the assessment, and we’re into kind of guessing what our current recruitment actually looks like.

The fact that we’ve had one out of the last eight or ten years that was at or above the average recruitment for the stock, to me, indicates that it is a time period of low recruitment, and we just haven't had as long of a time period, and so we don’t know if this is going to be something that maybe has already changed, you know, say two or three years ago, or will change shortly in the near future, but what we saw in the 1990s was an extended period of relatively high recruitment.

That showed up beautifully throughout the assessment, and we’re on the backside of that. We’re not overfished, and we’re not overfishing, but I think this is the kind of stock that, if we’ve got an index of something that we can be tracking, it’s something that should be done, because I don’t feel comfortable recommending that we use average recruitment that we haven't seen in recent history, and we’ve only seen it once since 2011. That’s all I had.

CHAIRMAN NANCE: Thank you, Harry. Doug Gregory, please.

MR. GREGORY: Thank you, Mr. Chair. I know we do things slightly different for each stock assessment, but I seem to remember that it was either amberjack or it was king mackerel that we took the

average of a ten-year period, and, you know, I suggest we consider that, because that would actually average the low and the more recent years together and come out somewhere in between, and that would be less risky, and then, you know, that's easy to justify the little bit of risk that would be taken, given the health of the stock, and so, as a consideration, maybe just take the ten-year average.

CHAIRMAN NANCE: For the last ten years, Doug, you're saying?

MR. GREGORY: Yes.

CHAIRMAN NANCE: Okay. Thank you.

MR. GREGORY: So we incorporate both regimes, or both model types, or data types.

CHAIRMAN NANCE: Yes. Josh.

DR. KILBORN: If you look back at the greater amberjack recruitment curves that we looked at in November, there was about a ten or twelve-year period of relatively above-average recruitment and then a very rapid drop to below average, where it pretty much has persisted since the 1990s, the early 1990s, with just a couple of years going above the average.

What I'm concerned about here is that we might be at the beginning of a similar trend, where we have a pretty rapid decline in actual recruitment versus estimates, and so these recruitment deviations are way below average and dropping quickly, and so we might be kind of getting to the bottom, where we're going to stay at the bottom for a long period of time, and so I am not saying that we're doing anything particularly wrong, but I am saying that it's possible that we might be seeing the beginning of the signal that we're looking for and we're ignoring it, and so I just want us to be extra critical about this as we move forward. Thank you.

CHAIRMAN NANCE: Thank you. Josh, do you have any opposition to a ten-year average?

DR. KILBORN: I think that's more reasonable and in line with what we did before.

CHAIRMAN NANCE: I'm not saying exactly ten years, but if you --

DR. KILBORN: Yes, and I do think that something along those lines might be more appropriate.

CHAIRMAN NANCE: Okay. Thank you. Ryan.

MR. RINDONE: This isn't to say one way or another about the ten-year average or not, and that's you all's decision, but, just to give you some idea of what the fishing environment is likely to look like in the short-term in the Gulf, we're looking at a pretty remarkable decrease in the gag catch limits that's going to be coming into effect in 2023, and likely to persist in a meaningful way for several years thereafter.

Red grouper is down quite a bit from what it was previously, and that stock appears to be getting healthier and growing, but, still, we had a recreational closure this year, and I think it was August 29, and so, as far as targeted grouper fishing goes for the shallow-water groupers, you know, in the short-term, I guess it would be -- What I'm saying is it would be forecast to be some decrease in that, decrease in directed targeting of groupers, based on just what seasons are open and when you can actually fish for these things, and hopefully, as these stocks rebuild, especially gag, and also red grouper, that situation will improve, but it's just something to keep in mind, like a little bit of a management bias, that could come into play, in terms of the actual removals.

We had a question earlier, that Peter Hood was kind enough to toss some information, about the amount of shallow-water grouper landings from the commercial sector, and so, right now, only about twenty-some-odd percent of the shallow-water grouper quota for the commercial sector has been landed, and it's about 113,000 pounds, and, for 2021, the commercial sector only landed 154,000 pounds, and that's out of an allowable 525,000 pounds.

CHAIRMAN NANCE: Tom, to that point, please?

DR. FRAZER: Just to follow-up on Ryan's comments about gag, I guess all of these thoughts are related. You know, you've got a reduced catch in shallow-water groupers, which is, perhaps, uncharacteristic, and you've got a decade's worth of kind of, you know, spawning stock biomass, right, decreasing, and recruitment indices are low, and we've had a couple of presentations from now that we're going to be looking at gag, where we used an MSY proxy of SPR 40, and this is a really similar species. I'm just curious if the SSC has considered using an SPR of 40 for scamp, and that's just a question.

CHAIRMAN NANCE: Good question. Luiz, you had a --

DR. BARBIERI: Let me just -- Well, no, because I was going to talk about something else.

CHAIRMAN NANCE: Okay. Roy.

DR. CRABTREE: Well, I mean, we haven't considered it today, but I think it's been in the back of all of our minds, and I suspect you could go back through the rationale that we gave for gag and it would apply equally well here. Red tide is sort of an unknown here.

CHAIRMAN NANCE: Scamp doesn't seem to have the same issue with red tide, and David can correct me if I'm wrong.

DR. CHAGARIS: Well, I can't really confirm that, because we haven't looked at the juvenile stages of scamp within the model.

CHAIRMAN NANCE: Okay. Will, to that point?

DR. PATTERSON: Well, not just to that point, but juvenile scamp are out on the shelf, and they're not inshore like gag and red grouper, to a less extent than gag, but what's really, you know, troubling to me, looking at the estimates of the age comps, is in the males and not so much the females.

In the females, you see a dip in the mean ages, and, in recent years, that's low recruitment and not strong recruitment, and so that's going to have some -- You know, it's going to have a big impact on the spawning stock biomass estimates, but, if you look at the males, you know, for -- There has not been a lot of recruitment to that life stage to sex change for over a decade, and, while the mean age of the males has increased a little bit over that time period, it's because not only are you getting fewer fish recruiting to become males, to sex change, but you're also -- The oldest males in the population, those ages, the estimated numbers-at-age, has also been declining, and so you're getting this shrinking toward the mean, although it's slightly elevated, but it's slightly elevated because recruitment to the male sex has been so low over the past decade, and for a protogynous hermaphrodite, that's a really troubling pattern.

CHAIRMAN NANCE: Luiz.

DR. BARBIERI: Good points, Will, and, to add to that -- Thank you, Mr. Chairman. To add to that, there's also the issue that -- I mean, I'm really under the impression that scamp is a much less productive stock overall, in terms of total biomass production, than would be other stocks like red grouper, and even gag, right, and so, if we try to align our reference points also to some metric of stock productivity, I cannot see why a 40 percent

SPR proxy would not be appropriate for gag, I mean for scamp.

Then, real quickly, if we can go back one slide, Jessica, and I'm just trying to understand, Katie, this graph here at the bottom-right. I mean, if that indicates a sin curve by cyclical pattern of recruitment, there was actually low, below average, in the mid to late 1980s, and then it picked up, and now it's coming down again, and, eventually, you know, you might go back up, and, again, we would be adjusting catch levels to be more reflective of where in the cycle the cyclic pattern of the scamp population would be, and so, in terms of recruitment, to me, that would justify using the recent whatever many years, ten years or whatever.

CHAIRMAN NANCE: Roy.

DR. CRABTREE: That's the problem I see with picking some period of years. I mean, how far back do you go? If you go back fifteen years, then you get quite a few high points back there.

CHAIRMAN NANCE: Yes, and I was looking at that, Roy, and, if you go back ten, as has been suggested, you basically start in a period where it's been going up, and that's where it starts that downward trend, in a way. There's a high point in there, but it starts -- That's kind of the point where it starts moving towards the bar, and so that would be, I think, in my mind, a good place for the average, over that ten-year period, for the more recent years.

DR. CRABTREE: Yes, and I see that, and I don't necessarily object to that, but it's just that we're -- We tend to be picking the cutoff point, because it's low, but --

CHAIRMAN NANCE: Well, it's low, but it also reflects, in my opinion, the recent years, and so I'm not picking it because it's low, but more because it's more of an indication of recent history, is what I was looking at, and so two things we need to do.

We've talked about the recruitment for projections and things, and we need to move forward on that eventually, but, first, we need to maybe have a motion or something about the model itself, and so the model itself, and are we comfortable with the model, and, if so, I would like to entertain a motion to move that forward.

DR. BARBIERI: I have some language here, but I don't know how much this would, you know, potentially change if we change our reference points.

MR. RINDONE: If you change your reference points, you're going to have a different model, and so, if that's something that you want

the Center to look at, then you need to request that before you determine which model you think best represents the stock.

DR. BARBIERI: That was my point exactly, yes.

MR. RINDONE: So I don't think you could say that you think this one is consistent with -- Well, I mean, you could say this one is consistent with BSIA and then request 40 percent, but then I just think it -- Like the decision-making gets a little bit -- You know, the line gets a little blurry.

DR. BARBIERI: Right, and that was exactly my point, that, if we're going to start that conversation, perhaps, we should wait and have that after we --

CHAIRMAN NANCE: Sean, did you have a comment?

DR. POWERS: Well, I was going to -- We usually do this thing where we do the BSIA and we accept the stock status.

CHAIRMAN NANCE: Yes. That's right.

DR. POWERS: So the SSC moves to accept SEDAR 68 Gulf of Mexico scamp operational assessment, OA, as best scientific information -- As consistent with best scientific information and accepts that scamp is not overfished or experiencing overfishing. I guess accepts the conclusion of the assessment that --

DR. BARBIERI: Second.

CHAIRMAN NANCE: Okay. Thank you. Roy.

DR. CRABTREE: But, if we're talking about 40 percent SPR, then we don't know if the stock status is that or not, because we haven't evaluated it relative to 40 percent SPR, right?

CHAIRMAN NANCE: Sean.

DR. POWERS: I totally agree, and so I'm accepting the 30 percent in this motion. If there's a substitute motion that wants to do it at 40 percent, then I think now is the time to make it.

CHAIRMAN NANCE: Luiz.

DR. BARBIERI: Well, we have not seen that run, right? We haven't seen the results, unless they exist already, right, and they don't, and so I think we would have to expect another run that uses the 40 percent.

CHAIRMAN NANCE: Will, to that?

DR. PATTERSON: I'm just curious, procedurally, and I thought the council set what the FMSY is, the proxy, so that we could provide a recommendation that it be reset, but I don't think we can arbitrarily -- Not arbitrarily, but we can't ourselves change that without -- We can recommend that it be changed to that.

CHAIRMAN NANCE: Ryan.

MR. RINDONE: Yes, and that's basically what you guys did with gag, and so you guys -- We went through a lot of step-wise progressions with the gag situation, going from MRIP-FES to SRFS, and then, in that, you guys also demonstrated your lack of support for Fmax, but, ultimately, the prerogative of defining status determination criteria lies with the council.

The council is the one that would define what FMSY's proxy is going to be, and so, here, the default for it is 30 percent SPR, and so you guys would have to -- You guys could present F 40 percent SPR as an option, but F 30 percent SPR would need to be presented as an option as well, because that represents the current status determination criteria, and so the council would have to make the decision of which it was going to go with, based on the recommendations that you guys provide.

CHAIRMAN NANCE: Will.

DR. PATTERSON: So one way to capture that here would be to say that the operational assessment is consistent with the best scientific information, period, and then say, under the current FMSY proxy of F 30 percent SPR, model-produced estimates are that the stock is not undergoing overfishing or overfished.

DR. BARBIERI: Will, do you mean to then make a separate motion where we --

DR. PATTERSON: Well, somebody could, but I'm just saying that this gets us around this issue about having to figure this out now. We can just say, under that scenario.

CHAIRMAN NANCE: Sean, are you okay, and John?

DR. POWERS: I am fine with that. Procedurally, I think that would then -- If we have another motion that the SSC wants to see F 40 percent, then that's fine.

CHAIRMAN NANCE: Yes.

DR. PATTERSON: So, to finish this one, just put a comma after "SPR" and say, "the model derived estimates are that the stock is not experiencing overfishing or overfished".

MR. RINDONE: You could say that the model estimates that the stock is not --

CHAIRMAN NANCE: Estimates the stock is not experiencing --

DR. PATTERSON: Models are inanimate objects.

CHAIRMAN NANCE: Okay, and so here's how it reads right now. The SSC moves to accept SEDAR 68 Gulf of Mexico scamp operational assessment as consistent with best scientific information. Under the current FMSY proxy of F 30 percent SPR, the model derived estimates that indicate -- I should be "that indicate", Jessica.

DR. PATTERSON: No, and I would strike "that" and just say "indicate the stock is not overfished or experiencing overfishing".

CHAIRMAN NANCE: Thank you. The model-derived estimates indicate the stock is not experiencing overfishing or overfished.

DR. PATTERSON: It probably sounds less clumsy to say, "is not overfished or experiencing overfishing".

CHAIRMAN NANCE: Thank you. Perfect. Okay. Discussion? Go ahead, Luiz.

DR. BARBIERI: Will, I understand where you're going here, but I'm just trying to think about, you know, how the council will interpret this when we provide this motion that could carry, or we expect it to carry, and then we have a separate motion that makes a recommendation, based on our, you know, joint scientific professional judgment, that is making a recommendation to the council that using an F 40 percent SPR might be more appropriate for this species.

Then it may say, okay, so which one are you making here? You accepted this one, and so maybe we stick with 30 percent for this one, and we consider 40 for the next, or -- You know, I'm just trying to make it clear for them that, at this point, until we see additional projections that perhaps consider the 40 percent, or we can make this recommendation to the council, that the council think about this and get back with us, and I find it difficult to accept

this.

CHAIRMAN NANCE: John and then Will.

DR. FROESCHKE: It seems like there's two ways that you could go about this. If you wanted to recommend the 40, you could keep this, and that's fine, and then you could do the SPR-40-based projections, and, if you were satisfied, you could make those OFL and ABC recommendations, and we could take those to the council, and, if they wanted to use those, they can simply note, based on that language in Reef Fish 48, that the SPR proxy, or the MSY proxy, is being modified to that, and they could concur with that, and they could modify it, and that would be that. The other way I think that it could be done, if you wanted to do that, is you could make OFL and ABC recommendations contingent upon either the 30 percent SPR or the 40, and then they could pick.

CHAIRMAN NANCE: Will.

DR. PATTERSON: I mean, I think this is accurate. It's under the current proxy. It's what's on the books.

CHAIRMAN NANCE: What I was going to say is this is a lot different than gag, in the fact that -- Only in the fact that we have been fishing this at an F 30 percent SPR and see that we have no overfishing or -- We're not overfished, and we have no overfishing.

In gag, we've seen that, where we've been fishing at SPR, or F 30 percent SPR, and we have seen a continual problem, and so that was, in my mind, why we wanted to bump that up to 40 percent, getting to that higher level, where we're not going to have the issue, and so that was my perspective, and so that's why I think they're different. They may have similar life histories, but, as far as what has happened here -- That's why I'm more comfortable with 30 percent in this case, as opposed to trying to --

DR. CRABTREE: Weren't we though -- We were fishing gag at Fmax, right, and then we changed how it's calculated to -- Did we change to females only, whereas it had been sexes combined, and I'm assuming this one is females only, or is it sexes combined? Did we switch gag to sexes combined?

CHAIRMAN NANCE: Yes.

DR. CRABTREE: Okay, but there more changes there than there are here, but I think I get your point though, that we've been fishing at 30 percent all along, and things appear to be healthy, but, really though, we could be -- Because we're fishing at 30 percent,

and 40 percent is the more appropriate reference point, I mean, things really aren't as good as we think, and we just aren't scaling it to the proper reference point.

CHAIRMAN NANCE: Ryan.

MR. RINDONE: Just with respect to the decision that you guys arrived at for gag, you know, you started at -- You know, like Roy said, we were managing gag at Fmax, and the assessment was females only, and there was a lot of debate after SEDAR 33, and the 33 update, about whether or not it should be sexes combined, and you guys were actually pretty close split on that, following SEDAR 33's update, and so that was one of the more contentious parts of that assessment's review.

Then, ultimately, we got to SEDAR 72, the condition of the stock, the continued decline in recruitment following successive red tides, and the stock just didn't seem to be bouncing back from those red tides, and you guys arrived at the conclusion that, you know, 40 percent was probably better, one because the stock didn't seem as resilient to red tide, and, two, recruitment wasn't bouncing back, and like it was continuing to depressed for a long period of time, and, three, under -- When we got to the alternative SRFS run, SRFS doesn't estimate that the stock is as productive as the MRIP run did, and so the thinking that you guys had proffered to the council is that F 40 percent SPR would allow the stock to rebuild to a more robust level that would be able to endure things like episodic mortality, while being able to sustain some measure of fishing pressure in the process.

As you discussed here, scamp doesn't have quite the problem with red tide that gag does, but it also hasn't been the subject of as targeted of fishing effort as say gag and red grouper have, and this is the first time that we've assessed it, and it's being assessed at 30 percent SPR and sexes combined, and so just to kind of like paint everything out there on the wall for where we were with gag and where we got to and where we are now with scamp. We haven't been anywhere else with scamp, and this is the first time.

CHAIRMAN NANCE: Will.

DR. PATTERSON: I don't disagree with any of that synopsis, Ryan. However, we had discussions, ages ago, about what are appropriate proxies, and, for protogynous hermaphrodites that live as long as these animals live, we've had lots of discussions, pre-dating any red tide modeling or estimated impacts, in which the SSC recommended higher levels for the SPR proxies for these sex changes, and gag and scamp are closely related congeners that have

very similar life histories, with the exception that scamp don't get quite as big, and they don't settle out in inshore or nearshore grass beds, and they're not as subjected to the red tide mortality events.

The reason that I suggested adding this little bit of a qualifier was because instead of -- Luiz's perspective is this kind of pins us in. I was trying to leave room for a motion that would allow the recommendation to switch to the MSY proxy to F 40 percent, because this allows that. It just says, under the current proxy, this is what the model-derived estimates are, and then it provides room for a subsequent motion. If folks feel that this pins them in, then vote no, and we can redo it.

CHAIRMAN NANCE: Okay. Roy, to that point, and then, Luiz, to that point.

DR. CRABTREE: So, John, Amendment 48 basically says the SSC selects the proxy, and, unless the council objects to it, that's what happens, and is that right?

DR. FROESCHKE: It says that MSY is a council decision. However, and, prior to Amendment 48, in order to change the MSY, we had to write an action in a document and have alternatives and things. What happened in Amendment 48 is there was a provision included that, if the council wanted to use something else, and they could just use it, and they could just note that in a plan amendment and move forward, and so it would prevent the requirement to analyze alternatives.

If the SSC made a different recommendation, say SPR 40, and the council concurred with that, based on the rationale that was provided by the SSC, they could accept the catch projections and move forward, and that would be that, but it doesn't -- So the SSC, I guess, could recommend SPR 40, and the council could say, no, we think it's 30, and we would have to move forward with that.

DR. CRABTREE: Given that, it does seem cleaner, to me, that, if we think we're going to recommend 40 percent, then we ought to get the numbers figured out at 40 percent and recommend that to them, and they can then say, no, we don't want to do that, and we want to stay at 30, and that's fine, and that's their decision, but, if we think it ought to be 40, it seems to me then that's where we ought to go here.

CHAIRMAN NANCE: Luiz and then Will.

DR. BARBIERI: To that point, I was going to put our council

liaison on the spot, right, because he's coming and attending these meetings and to listen to our deliberations and weigh-in, right?

CHAIRMAN NANCE: Will, why don't you go ahead, while he's --

DR. BARBIERI: Well, I was going to ask for your thoughts on this discussion regarding the 30 and 40, and not necessarily making a choice on your own, right, because I don't want to pin that on you, but, basically, if you are serving here as council liaison to the SSC, and trying to capture what we're discussing, but also express and clarify to us what the council would feel about some of these decisions, that would be good to hear.

DR. FRAZER: Well, I think -- I mean, the council, obviously, respects the expertise that's around the table, right, and the expertise extends, you simply, beyond the modeling, right, and it's expertise on the life histories of the animals and taking that into consideration when you're trying to figure out what is the most appropriate model, moving forward, and, if it's the recommendation of this body that says that, you know, we've certainly considered various MSY proxies, right, but, based on our collective understanding of this species, we offer this alternative, right, and I think the council would respond, you know, favorably to that.

CHAIRMAN NANCE: Will.

DR. PATTERSON: So back to Roy's comment, and I totally agree. If that is the desire of the SSC, to recommend that the proxy be changed to F 40 percent SPR, then we should strike the second sentence here, leave it as a simple motion, and then ask the Science Center folks to produce the projections at F 40 -- Or to estimate. Produce the benchmarks, and stock relative to benchmarks, at F 40 percent SPR, and then put that forward.

It makes it cleaner here, and it also, given what John just told us about plan amendments versus more complicated ways, or issues, and changing the proxy -- Given that scamp is not estimated to be in bad shape, and we're not under the gun here to really make that shift abruptly, and so it would provide some time for back and forth between us and the council.

CHAIRMAN NANCE: Let me just make one -- So I don't like the idea of voting on this one and then it gets declined, because everyone wants the 40 percent, and should we do a substitute motion that talks about -- That moves 40 percent, and, that way, we're moving as a body. We've talked about this one, and, if we want to recommend 40 percent, an F 40 percent SPR, then we need to probably

have that as a substitute motion, and I think that's a clean way to do this, and I don't think we can -- Basically, it's just rerunning the model.

I don't think we can say anything about the best scientific information or things like that, because we haven't seen it. We're just saying we're recommending that scamp is similar to gag, and we're moving towards having an F 40 percent SPR, and then have that brought back to us. Roy.

DR. CRABTREE: Wouldn't one way to do that just be to pull this motion back and then ask the Center to produce the 40 percent?

CHAIRMAN NANCE: I guess you could have a substitute motion, or Sean can withdraw this one, I guess.

DR. POWERS: I would prefer to see a substitute motion. For example, like you said, I mean, we really need to know if people want to see 40 percent that much or 30 percent. I'm comfortable with 30 percent, because of what you detailed, and so I really think it would be a substitute motion.

CHAIRMAN NANCE: Dave, did you have a -- I'm sorry if I have missed your hand.

DR. CHAGARIS: That's okay, and I think Roy kind of got at it with his last point, but just -- If we separate the projections from the stock status determination, then it's pretty -- I don't think we need to rerun the model to get the benchmarks at F 40 percent. You just have to change the denominator and recalculate them. It's not a different model run, right, and you would have to rerun the projections, but, to say whether it's overfished at 40 percent, that doesn't require a new model run, correct?

CHAIRMAN NANCE: I thought it did. Go ahead, Katie.

DR. SIEGFRIED: Just the projections and not a model run.

DR. CHAGARIS: Right, and so we could easily probably get the answer, very quickly, to say that it's not overfished or experiencing under both ratios, or we could get that answer and we could table this motion and address it tomorrow, if you needed to do that overnight. I think there are several ways forward here, but, with this particular motion -- You know, this is just about the stock status determination, and no model runs have to be done to look at it at 4 percent.

CHAIRMAN NANCE: John.

DR. FROESCHKE: Just so I understand, when we did amberjack, we did the projections, and we had to make assumptions about, for example, the recruitment, because assumptions based on the recruitment potentially could change the benchmarks, and so is that true here, and, if so, would we need to determine that, carry out the projections, and then revisit the benchmarks?

DR. SIEGFRIED: We would need to decide on the projection settings before I did an F 40 run, and we would need to talk about that more, because of the fact that the recruitment deviations are fixed at the end of the time series and that there's issues with using average recruitment when it's fixed back in time.

If you recall, the amberjack estimated rec devs all the way to the termina year, and this one does not, and so there is going to potentially be slight differences in that, because we would have to either go with the stock-recruit curve for both the projection setting, the benchmarks, and for the recruitment, or we would have to go back and do something different with those terminal year recruitment devs, and so the group has seen those fixed recruitments, and not had a problem with it, but wanted to do something different for the projection period, and that might change some of the results. My intuition is this is so far off of a bad status that it's not going to head into bad status territory, but the numbers may change a little bit. Does that make sense?

CHAIRMAN NANCE: What you're saying is your feeling is that rerunning the -- It's still going to be not overfished or experiencing overfishing.

DR. SIEGFRIED: Yes, and I know you need the numbers and all of that, but, I mean, it so far off that I really don't think that that's going to be an issue, but the recruitment matters here, and so, in gag and in greater amberjack, we estimated rec devs to the end.

This will require a little bit of a different approach, if you decide to use average recruitment at the end of the time series, and so it might even take a little bit of coding to get that done, and I do -- I've said it a couple of times, but assuming the recruitment devs at the end come from the stock-recruit curve wasn't a problem until we brought it up for the projections, and so that would need to be decided before you could, you know, accept the model, if you need to do two different things for the projections.

CHAIRMAN NANCE: In order to accomplish this -- Okay. We have

this motion.

DR. BARBIERI: I have a substitute motion that I am developing.

CHAIRMAN NANCE: Okay. While you're developing that motion, Doug Gregory. Let me hear Doug, and then we'll take a five-minute break.

MR. GREGORY: I'm not preparing a motion, but withdrawing this until we get the 40 percent would be fine with me. I have a question for Kate. I've been involved in a couple of discussions, stock assessment discussions, where it's been argued, or pointed out, that, when you use a Beverton-Holt curve, and you can estimate steepness, or you have a steepness, fixed or with priors, that you really should be using the estimate of MSY from the Beverton-Holt curve rather than a proxy, and that you're mixing maybe apples and oranges.

I don't know enough about the process to fully understand it, but the idea was that you're mixing apples and oranges when you can estimate an MSY, but you don't, and so my curiosity here is, when we're talking about 30 percent SPR, or 40 percent, how do these numbers compare to what the actual MSY estimate from the model is, and I would like to see that, if that's possible, without a lot of work. Thank you.

DR. SIEGFRIED: To Doug's question, I mean, that could be something we took a look at, but we didn't, because we didn't estimate steepness with confidence, and so it's a fixed steepness value, and so we didn't use MSY. We used the proxy, and that's the general algorithm that we followed, but I haven't -- I don't have MSY versus MSY proxy on hand, or MSY proxy versus FMSY on hand, but I could look into that.

CHAIRMAN NANCE: Okay. Let's go ahead -- Will, please.

DR. PATTERSON: Real quick, to Doug's comment, by fixing steepness at 0.69, I think it was, or something, we've basically already prescribed what the FMSY is for that model, right, and we didn't estimate steepness. We fixed it, and so that carries with it an FMSY value, and so that's why we would use a proxy, in this case.

CHAIRMAN NANCE: Thank you, Will. Jess, can you bring up the substitute motion, please? This motion is offered by Luiz. Luiz, would you read it, please, and then we can have a second?

DR. BARBIERI: Okay. **The substitute motion is the SSC accepts the SEDAR 68 operational assessment, using the current status**

determination criteria, as consistent with the best scientific information available. However, the SSC thinks that investigation of an FMSY proxy of 40 percent SPR is merited, given the seemingly lower overall productivity of the stock, especially since scamp is not directly targeted as widely as gag and red grouper and that scamp do not typically grow as large as gag and red grouper. Thus, the SSC requests that the Southeast Fisheries Science Center produce benchmarks and projections using F 40 percent SPR for consideration by the SSC. For these projections, the SSC determines that recruitment should be informed by the model-derived recruitment for the last ten years.

CHAIRMAN NANCE: Do I have a second for that motion?

DR. SAUL: I will second it.

CHAIRMAN NANCE: Okay, Steve. Thank you so much. Is there discussion? David.

DR. CHAGARIS: I have a question about the last sentence, where you say, "the model-derived recruitment", and are you implying that they estimate the deviations out to the terminal year? Is that what you're implying, or just the current recruitment, because I think Katie will need that.

DR. BARBIERI: What recruitment are you using right now? They are using those, because those are the only ones that they have, right, and so they are just going through that time series there and picking up the last ten years.

DR. CHAGARIS: So using the existing recruitment setting.

DR. BARBIERI: Exactly, yes.

DR. CHAGARIS: Okay.

DR. SIEGFRIED: I'm sorry, but can you say that one more time? I was thinking about too many things at the same time.

DR. BARBIERI: I think that you get the existing recruitment, right, or whatever comes out, and, I mean, you're going to have to regenerate it, but you get the existing recruitment values that are model-derived coming out of the model and produced, and you look at the last ten years, and they should be equivalent to the last ten years that we saw in that graph there, right, and so, similar to what we did for greater amberjack, the benchmarks are estimated using that long-term stock-recruitment relationship derived, right, but these near-term projections are based on this

last ten years average, right?

DR. CHAGARIS: I was just questioning whether -- Because Katie had mentioned that she --

DR. BARBIERI: I'm glad that you asked that, because it wasn't clear.

DR. SIEGFRIED: Yes, I understand what you're asking for. I am checking with staff to see if this is possible tonight. It's definitely possible not tonight, but it's not simple with the code we have, because we might have to estimate those terminal years of recruitment, but, because of the code the way it is right now, if you guys -- If you all want it tomorrow, that's different than if you want it a little later.

Then I don't feel confident in the last, you know, four years, or three years, being estimated and not looking at more diagnostics about it, because those last years of recruitment are incredibly -- I mean, that's why we didn't estimate them, because they can be very unstable, and so I need to check about what can be accomplished tonight, but I understand what you want.

CHAIRMAN NANCE: Jason.

MR. ADRIANCE: Thank you, Mr. Chair. I'm still confused about the last ten years, and maybe we can put some years on that. Is that 2017 going back, or does that ten years include those last four years that are averaged?

DR. SIEGFRIED: It shouldn't include those last four years, because those are stock-recruit curve -- They're pulled from that, and so those aren't estimated, and so it should be the last ten estimated years of recruitment.

MR. ADRIANCE: Okay. That's what I wanted to make sure.

DR. BARBIERI: Right, and that's similar to what Dave asked, and that's a good point.

CHAIRMAN NANCE: Thank you. Yes. The last estimated ten years. How's that?

DR. BARBIERI: Jessica, the last ten years, and what are the years then? 2008 to 2017, just to be clear.

CHAIRMAN NANCE: Perfect. Will.

DR. PATTERSON: I think -- I don't have an issue with that change in the recruitment for projections. The middle part though -- It seems like we have a lot of words here that maybe we don't really need, and we could -- I mean, if we just said -- **Because we had this issue earlier, where there was a complicated, long motion that people had issues with, and maybe we could just say, "based on their life history, the SSC recommends an SPR of F 40 percent".**

DR. BARBIERI: By the way, Will, you know, efficiency with words is not one of my strengths, and so I gladly --

DR. PATTERSON: Just a friendly.

DR. BARBIERI: Exactly, and I gladly accept that. That efficiency is welcome. Thank you.

DR. SIEGFRIED: Self-awareness is one of your strong suits.

CHAIRMAN NANCE: Let's go ahead and -- So you see what's happening here, Luiz. It says, "based on life history --"

MR. RINDONE: Jess, you can just go "is merited, based on the species life history". So "F percent SPR is merited, based on the species life history.".

CHAIRMAN NANCE: Then take out --

MR. RINDONE: Then just delete everything all the way down to "thus".

CHAIRMAN NANCE: To "thus". Perfect. Thank you. Harry, please.

MR. BLANCHET: I had this comment the last time we did this, and I will do it again. The 40 percent is based on the Harford et al. 2018 paper, and I don't know that we have ever given that paper a full review, and this is only the second time that we have done this, and I just think that we need to establish how we are using that paper, or what other information we are using when we say that it's based on the species' life history, so that there is an adequate record to support that particular benchmark.

In this case, I'm not sure that, based on the information that we have in this assessment, that we can support it without that Harford paper, because what we saw is that, when the species was at its largest abundance, we ended up with several years of low recruitment, and so I'm not sure, and, as others have pointed out, that's part of why we have a very poor stock-recruit relationship. I don't know that we can say that we're any better off at 40

percent SPR than at 30 percent SPR for what we might estimate to be recruitment going forward. I'm done. Thank you.

CHAIRMAN NANCE: Thank you, Harry. Steven Saul, please.

DR. SAUL: Sorry, but, just for my own clarity, and I don't mean to belabor the point, but the last -- In the last sentence, where it says, "recruitment should be informed by model-derived recruitment from the last estimated years", just, again, for clarity, is that -- That's taking the average, right, and not using -- That's not like fitting the stock-recruitment relationship to those years and then using the relationship, but that's using the average over those ten years, right?

CHAIRMAN NANCE: Luiz.

DR. BARBIERI: Yes, it's using the average of those ten years.

DR. SAUL: Okay. Thanks.

CHAIRMAN NANCE: Any other --

DR. BARBIERI: At least, Steven, that was my thought process, right?

DR. SAUL: Yes, and I wonder if that should be like made a little bit more clear in that sentence.

DR. BARBIERI: Then please go ahead, Steven, because, I mean, that's the thing. Sometimes you're putting this text together like this, and it doesn't come out the way it should, and I think that all of us, working together, to clarify it helps.

DR. SAUL: Maybe just including the word "average", that "it should be informed by the average model-defined recruitment", or "the mean", if you want to get mathematical or whatever.

DR. BARBIERI: That's an excellent suggestion. Thank you.

CHAIRMAN NANCE: Thank you. Will.

DR. SAUL: Thank you. Otherwise, it could be implied that we want them to like fit the curve, you know, like essentially time block recruitment, but that's not what we're asking, although that could be an interesting proposed solution, but I won't go down that rabbit hole now.

CHAIRMAN NANCE: Thank you. Will.

DR. PATTERSON: I'm good. Thanks.

CHAIRMAN NANCE: Any other discussion on this motion? John.

MR. MARESKA: I guess just a point of order. If we ask Katie to do it, and she's reaching out to the Science Center to potentially do this work tonight, then why are we sending a request to the council?

CHAIRMAN NANCE: Well, in case she doesn't do it tonight.

MR. RINDONE: I mean, there is still utility here, and so you guys are acknowledging the work, you know, the body of work, the analytical product that's been produced, as, under the current status determination criteria, as being consistent with BSIA. However, you have more that you want considered, and so it's an acceptance that the work that was done, under the parameters that were given to do it, was done appropriately, and that is something that -- A decision that does befall you guys as being the peer review body for the operational assessments, and so that checks that box for what you guys are responsible for looking at.

Now, you guys want to investigate an alternative proxy for FMSY, and this makes it clear to the council, along with all the discussion, about why you want that, and, if they're able to get it done before the end of the meeting, then, great, and, if not, we'll put it up for discussion at the next available meeting, and so there's still important steps that are happening along the way.

CHAIRMAN NANCE: Will.

DR. PATTERSON: So, along the same lines, perhaps we should say, "however, the SSC thinks an FMSY proxy of F 40 percent is merited", instead of "investigating", because we're not really going to investigate it. We're just going to suggest that that's what you use.

CHAIRMAN NANCE: Luiz.

DR. BARBIERI: I was going to -- **Yes, and thank you, Will.** That's another good point, but this is really a question for Katie. Katie, looking at this setup here, is this putting the Center in a bind, to create an unwarranted amount of work in a short period of time, because, I mean, that's not the idea, right?

DR. SIEGFRIED: I will tell her that Luiz has a question for you. I don't think so, and I'm used to producing, you know, updated

projections overnight, and having to be able to see them the next day, and this one might be harder to do, and I'm worried about those three years of fixed -- I don't think so, but, to me, I'm dissatisfied not being able to produce it tomorrow.

CHAIRMAN NANCE: Well, I think here's the key, is that we just do this at -- We do this motion, and we do it at a later date, because I don't want to have -- Run into where you guys really try to do it fast.

DR. CRABTREE: Just a point of order then, and it might be appropriate to make a motion to postpone action on this one until tomorrow.

CHAIRMAN NANCE: Jason.

MR. ADRIANCE: Thank you, Mr. Chair. We set parameters on recruitment for the projections in an F 40 percent scenario, but, should the council choose to ignore that, do we also need a 30 percent run, with whatever recruitment parameters we feel is appropriate?

DR. BARBIERI: To that point.

CHAIRMAN NANCE: Luiz.

DR. BARBIERI: We already have that, right?

CHAIRMAN NANCE: We have the F 30 percent SPR, but we do not have any projections.

DR. BARBIERI: I see.

DR. SIEGFRIED: I just wanted to clarify that the F 30 and F 40 thing is no problem, and we can do it overnight. It's the recruitment side of it, and I'm not saying that so that you'll drop or anything, but I'm saying it because that's the problem, and so offering those different proxies is something that we have built into the code, but we just haven't run into this scenario where the recruitment devs aren't estimated until the end and you want the average recruitment. We try to think of all the things that you could possibly want, but we just didn't think of that one.

CHAIRMAN NANCE: So, Katie, let me ask you this then. No matter if we do 40 percent or 30 percent, the projections, being able to produce those projections with this average recruitment for the last ten years, is an issue, I mean a potential issue?

DR. SIEGFRIED: It's just something that might take longer, and it might --

CHAIRMAN NANCE: That's for 30 and 40 percent.

DR. SIEGFRIED: That's right. The proxy is not an impact on that.

DR. CRABTREE: So we do have the 30 percent runs.

CHAIRMAN NANCE: No.

DR. CRABTREE: We do, but we just don't have those projections, but we have the status runs done.

CHAIRMAN NANCE: Okay. Yes. Thank you.

DR. CRABTREE: They're going to give us the status runs at 40 percent, which would allow us to make a motion such as this and move on it in the morning, and then there's the projections issues, and maybe we can get that done in the morning too, and, if not, we'll have to come back to it at another meeting, but --

CHAIRMAN NANCE: So, Katie, that is to -- To run the model with 40 percent SPR is easy, right?

DR. SIEGFRIED: With the stock-recruit curve.

CHAIRMAN NANCE: With the stock-recruit curve, yes.

DR. SIEGFRIED: Yes, but for both parts, for the future recruitment and to calculate the benchmarks, and I can do -- We have F 30, and I can do F 40, but, if you want a modification to the recruitments in the short-term, we would need more time.

CHAIRMAN NANCE: Okay. So we could do though -- If we saw the F 40 percent SPR tomorrow morning, just the model run, without projections, we, in theory, could make that first motion with 40 percent SPR, because we would have all of that information.

DR. SIEGFRIED: Yes, because, I mean, the status -- As Roy said, we would get that when we do that long-term projection.

DR. CRABTREE: The stock is not overfished and not undergoing overfishing, and so we have some time.

CHAIRMAN NANCE: So we could have that first motion with 40 percent SPR, and then we would have to make another -- We would have to

make a motion that we want to see --

DR. SIEGFRIED: In order to set catch --

CHAIRMAN NANCE: In order to have projections, in order to set the catch, yes, we would have to have that. Okay. Just to reiterate, that's going to be -- That will have to be done even if we accept the 30 percent SPR. Okay. Sean.

DR. POWERS: I think -- I mean, Katie, you suggested that you knew the answer, that, if you run it at SPR 40 percent, it's not going to change the stock determination, right, or is that --

DR. SIEGFRIED: I don't think it will, based on -- I mean, it's more precautionary catch advice, and it doesn't change the productivity.

DR. POWERS: Got you, and so it does really influence more the projections, and it won't as far as stock status.

DR. SIEGFRIED: It will change the denominator a little bit, but, given the denominator -- Given the ratio now, I doubt that it's going to knock it up to a point where it's going to go in overfished territory.

CHAIRMAN NANCE: Okay. I guess we can put these two on hold.

DR. BARBIERI: Table.

CHAIRMAN NANCE: Table. Thank you. That's a better term. We'll table these motions until in the morning. The very first thing we need to do tomorrow morning is gag, and so, no matter what happens tomorrow with this, gag is going to be our first order of business.

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

CHAIRMAN NANCE: Because of Dr. Powers. Anyway, Sean wants to hear that discussion, which I appreciate, and so we'll do that first, and then we will take up this, and then we'll move into the other orders of business. Do we have time to do a couple of -- To do one of those now? Okay. Let's go ahead and do -- Let's do -- Ryan, I am going to let you choose between XI, XII, and XIII? Which one?

MR. RINDONE: (Mr. Rindone's comment is not audible on the recording.)

CHAIRMAN NANCE: Okay. Let's do lane snapper.

MR. RINDONE: I am willing to bet that we can do lane and king.

CHAIRMAN NANCE: Okay. Let's do lane, and so that's going to be Item Number XI and Item Number XIII.

REVIEW OF SCOPE OF WORK FOR 2014 OPERATIONAL ASSESSMENT OF LANE SNAPPER

MR. RINDONE: All right. Jess, can you pull up the scope of work for lane snapper? There we go. We last did lane snapper as an interim analysis, and this operational assessment is scheduled to occur in 2025, using data through 2023. We did an interim analysis in 2019, which used the CPUE data, catch per unit effort data, from the headboat fleet in 2018 and was still estimating the stock as being healthy.

We don't have full status determination criteria, like those benchmarks estimated for lane snapper, because the iTarget model doesn't produce those like that, and so some of this stuff isn't quite as applicable, but one of the things that I know that the Science Center has talked about, and that we could certainly consider, is doing another interim analysis like what was done last time for lane snapper, as opposed to a full operational assessment, to try to expand the capability.

This will give us the opportunity to, you know, perhaps open up a little bit of bandwidth for some of our other assessment priorities, and so it's something for you guys to consider when looking at this.

Lane snapper is not a data-rich species, by comparison to some of the other stocks that we assess, and the stock has been found to be healthy over the last couple of times it's been looked at, and the council increased the catch limits under -- After converting over to MRIP-FES, to about -- I think the catch limit is now about a million pounds, and, John, is that right? The ACL, I think, is a million pounds, and there is no sector allocation.

DR. FROESCHKE: I can't recall. That sounds right, because it was like it doubled, and it's just under a million pounds.

MR. RINDONE: It's in that neighborhood, and there are no sector allocations for it, and so, John, Will, you guys can fight it out.

DR. PATTERSON: Under Term of Reference 3, we need to fix the thing about OY. It says, "OY equals 90 percent of", and it should be

"yield at".

DR. FROESCHKE: In the -- I brought up my little document here. For Alternative 2 for lane snapper, it just says 90 percent of MSY or MSY proxy, is how it's in the amendment.

MR. RINDONE: So OY equals the yield at 90 percent of FMSY or proxy.

DR. FROESCHKE: Yes.

DR. PATTERSON: No, and it should be 90 percent of the yield at FMSY. It's not the same.

DR. BARBIERI: The yield at FMSY is not --

MR. RINDONE: 90 percent of yield at FMSY or proxy. I am changing it. You don't have to. I'm the one that is going to send it anyway.

DR. FROESCHKE: So what are you changing it to?

MR. RINDONE: OY equals 90 percent of the yield at FMSY or proxy.

DR. PATTERSON: No. I think the suggestion to simplify it to 90 percent of MSY or MSY proxy is better.

MR. RINDONE: Okay. I can do that, too. So 90 percent of MSY or proxy. I guess, I mean, there is that decision point. Do you guys think an operational assessment is warranted, or do you think doing another interim analysis, using the CPUE data from the headboat fleet, is sufficient? Not all at once.

MR. MARESKA: I would argue the latter.

MR. RINDONE: Okay, and so that would be -- That would be a motion from the SSC to the council, to recommend just doing an interim using the CPUE data from the headboat fleet, and that is our indicative index of relative abundance that uses a reference period of catch and that is run through iTarget to produce those yields. John.

MR. MARESKA: How long has it been since the assessment has been done on lane?

MR. RINDONE: Well, the last analysis was 2019, and, before that, it was SEDAR 49, which was 2015, and so the most recent changing catch came from data from 2019, and I think that was put into

effect last year. I think that was implemented last year, and so doing that interim would be a quicker exercise for the Center.

We don't have -- I mean, if you look under Term of Reference Number 2 here, there's not a laundry list of stuff that I could dig out to change, and so there's some larger-scale as yet unaccomplished data needs, largely to do with more understanding about life history and survey coverage and age and length composition and lots of additional information that we just don't quite have as much of for as long of a time series for lane snapper as we do for other species. We're just not quite there yet, with some of that stuff, to be able to do a more in-depth assessment.

That's why Number 2 is kind of light, but, if you guys think doing an interim is sufficient, then you should make a motion to that effect, and, if not, then you should move forward with this and stamp these as good to send to the Center and SEDAR.

CHAIRMAN NANCE: What do we think?

DR. BARBIERI: A quick question here.

CHAIRMAN NANCE: Go ahead, Luiz.

DR. BARBIERI: To John's point, the interim analysis is adjusting a catch level recommendation that was made back in 2015, and adjusting that up or down with the index of abundance more recently?

MR. RINDONE: It's using the --

DR. SIEGFRIED: The iTarget method is a little different than -- If it was a more data-rich species, but that's essentially true, yes. Go ahead.

DR. BARBIERI: Well, I was just going to ask, because, before -- Okay. Maybe I'm confused about whether we have enough data to conduct an actual, you know, full stock assessment for lane snapper, versus just applying one of those data-limited methodologies, right, and I think we decided that all we're going to do, be able to do, is use a data-limited methodology, but then, in 2019 -- Initially, we made some catch level recommendations based on the iTarget, right, that came out of SEDAR 49, and, eventually, in 2019, we refreshed that? I see. That was the question. Thank you.

CHAIRMAN NANCE: You bet. Katie, please.

DR. SIEGFRIED: So, if this isn't appropriate for me to speak now, let me know, because I know this is going to the Center, and so this is supposed to be an SSC decision.

CHAIRMAN NANCE: No, this is -- We want your input.

DR. SIEGFRIED: Okay. If there's no -- I mean, if Ryan had to struggle to get those two things to list, in order to, you know, fill out what should be done during an operational, and I don't know that there is any more life history data, and, if warranted, I would have to check, and I'm not aware of that, and it's probably taking up a slot for an operational that's not necessary, and this is just my opinion and not the Center's opinion.

I think the first one is a pretty simple thing to do without doing a whole operational assessment, and we could actually provide, you know, those time series through a council request, instead of an operational, and it would take much less time.

I also recall this being a huge increase in the allowable catch last year, and so, if we did an index-based approach, you could follow the effect of that increase in the allowable catch much more quickly than you could get at it during an operational assessment, and so this, to me, seems like a great candidate for an interim analysis, until more data are available.

CHAIRMAN NANCE: Doug.

MR. GREGORY: Thank you. I guess this is a question for Ryan. We haven't seen a stock assessment schedule lately, that I can recall, and what does this -- If we do an interim with this, what specifically does this free up to do? I heard what Katie said, and I agree with all that, and it all makes sense, but is there any specific thing, other than it just frees up time, that could be done? Is there anything else that can be done?

MR. RINDONE: Well, so, for 2023, we have finishing up the red snapper research track and starting the operational assessment, which I'm sure will be very easy and straightforward, but we also have the yellowedge grouper and Spanish mackerel operational assessment, and both of those should be fairly straightforward. I expect some discussion about pre and post-IFQ effort for the commercial indices for yellowedge grouper, but Spanish mackerel should be just about as turn-of-the-crank as one could imagine that it could be.

Then, for 2024, we have starting the research track for gray triggerfish, and you guys might remember that we had to stop the

SEDAR 63 assessment of gray triggerfish during the assessment process, and the research track is going to be designed to be kind of a frame-off restoration of that and get that assessment where it needs to be, but that will be a big lift starting in 2024, along with operational assessments of red grouper and vermilion snapper, which would expect would start later in those years, and then cobia.

There's a lot of work that is kind of stacking up ahead of 2025, when we were expecting these to start, and so, considerate of all of that, and that research track for gray triggerfish, and trying to start a research track for greater amberjack in 2025, moving lane snapper to an operational assessment may take -- Sorry. To an interim analysis may take some of the strain off of the Center, especially for data compilation and things like that, to try to get at some of these other big question-marks that we have.

Right now, our information for gray triggerfish is also relying on interim analyses, but, previously, we had full stock assessments to be able to inform that, and getting that research track on the books was a priority for the council, and getting a research track on the books for greater amberjack was also a priority.

MR. GREGORY: Okay, and so it sounds like this is generally freeing up some time, or relief that --

MR. RINDONE: Just some bandwidth.

MR. GREGORY: Because I was curious, and would it be possible to slip in another interim assessment, like with king mackerel? It's been a few years since we had the assessment, because our goal is to get interims on most of the major species, and so that would be a good one to do, if we could, as an interim analysis. Thank you.

CHAIRMAN NANCE: Thank you, Doug. Roy.

DR. CRABTREE: I would like to make a motion that the SSC recommends that the council request an interim assessment for lane snapper be performed.

CHAIRMAN NANCE: It's on the board here.

DR. SIEGFRIED: Just a quick comment to what Doug was saying, and the interims are not scheduled in the SEDAR process, and so that's actually something that can be discussed outside of like Steering Committee work, and so I think that should be brought up separate, Doug, but it's certainly, you know, up for discussion.

CHAIRMAN NANCE: Thank you, Katie. Ryan.

MR. RINDONE: Yes, and so we coordinate the interim analyses directly with the Science Center, and it happens outside the SEDAR process, and so, essentially, based on Roy's intent, the SSC recommends that the council request an interim analysis for lane snapper instead of the planned operational assessment.

CHAIRMAN NANCE: Yes. I think that's --

DR. CRABTREE: Yes. Lane snapper instead of the planned operational assessment.

DR. PATTERSON: Call the question.

CHAIRMAN NANCE: Okay, and so we have a motion by Roy, and it's been seconded by Michael Allen. Is there discussion?

DR. PATTERSON: I called the question.

CHAIRMAN NANCE: Okay. **Any opposition to this motion? Hearing none, the motion is accepted without opposition.** Okay. Perfect, and so we need to go into public testimony. I appreciate the efforts today, and I think we had some good discussions. Jessica, we'll go into the public comment period now. Do we have any? Bob Zales.

PUBLIC COMMENT

MR. ZALES: Bob Zales. It's been a long day listening to you all, and I just want to give my perspective on the history of this allocation issue that you all discussed all morning, and because some of the SSC members I think are new, and they probably don't know the history of this.

In 2019, January of 2019, the council found out about the FES data and the red grouper stock assessment, and it shifted the allocation the 20 percent, away from the commercial sector to the recreational sector, and that was the first assessment that it was used in, and I think that that's kind of what is driving Bob Gill and some of the council to have you all look at how to do allocations, because that was a real simple way to go back in and use computer models to go back almost forty years in time to recalibrate recreational data, and it showed a tremendous increase in recreational data for that, and pretty much, every fishery it's been used in so far, it's done the same thing.

There is still a lot of controversy about FES, and some of the SSC

members have concerns about it, and several of the council members have concerns about it, and most of us stakeholders have serious concerns about it. The State of Florida clearly has concerns, because the State of Florida State Reef Fish Survey data shows a big difference between FES on red grouper and gag grouper, much lower numbers for the state numbers that are there, and so that's part of what has caused that situation, to try to figure it out, because we've been after the council and the Fisheries Service to use their current allocation protocol process to look at allocations, rather than just simply go back and recreating history and changing it arbitrarily.

In this scamp assessment, you all need to be sure and understand that, whatever you do with scamp, the council currently is looking at reducing the gag grouper harvest by about 80 percent, almost 80 percent, and the red grouper fishery, recreational fishery, has been closed since the first of this month, and it will be closed, unless they change, until the end of the year, and so you're looking at a four-month closure.

With the red grouper fishery closed, we are suspecting that you're going to see a tremendous increase in gag, and you'll probably see an increase in recreational discards of red grouper, which is already through the roof, and so, with scamp being not overfished or undergoing overfishing, then people that are going to normally target gags and reds are probably going to go after scamp, and so you're going to have increased discards in reds and gags, and you're going to have larger catches of scamp, and, for those that think that scamp are too far offshore, these new boats that they've got out there, with four or five and six outboards on them, and all the electronics that are there for these guys, and they can run out there and target scamp all they want to now, and so you need to consider all that when you're looking into all these things here, and so that's about it for now.

CHAIRMAN NANCE: Thank you very much for those comments. Any questions from the SSC for Bob? Any other hands up, Jess? Okay. Then we'll go ahead and adjourn today, and we'll see you bright and early at 9:00.

(Whereupon, the meeting recessed on September 22, 2022.)

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September 23, 2022

FRIDAY MORNING SESSION

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The Meeting of the Gulf of Mexico Fishery Management Council Standing and Special Reef Fish, Special Socioeconomic & Special Ecosystem Scientific and Statistical Committees reconvened on Friday, September 23, 2022, and was called to order by Chairman Jim Nance.

CHAIRMAN NANCE: We're going to start today with -- We tabled some things yesterday on scamp, but, today, we're going to start out with Item Number XIV, which is Review of the Updated Projections for Gulf of Mexico Gag Grouper Using SRFS, and then, once we're done with that one, we're going to go back to our scamp discussion, and so, Ryan, if you would please go over the scope of work for gag.

REVIEW OF UPDATED PROJECTIONS FOR GULF OF MEXICO GAG GROUPER USING SRFS

MR. RINDONE: All right, and so we have an operational assessment for gag scheduled for 2025, using data through 2023, and the last assessment was performed as an alternative model run using the base model from SEDAR 72, and it swapped MRIP's FES-calibrated landings and discards for the Florida State Reef Fish Survey data of the same.

You guys looked at that alternative SRFS run in July and found it to be consistent with BSIA for gag, and it uses sexes combined, and it estimates that the stock, as of 2019, is overfished and experiencing overfishing.

The rebuilding plan is being developed right now, and it's going to be Amendment 56, and we're going to be looking at catch limits, sector allocation, and recreational season adjustments in there as well, consistent with some of the decisions that the council made with the recent interim rule.

You guys should evaluate the scope of work and provide recommendations, and you should also consider whether it would benefit from any topical working groups to address key issues. The scope of work will then be sent to SEDAR and the Science Center for consideration for developing the terms of reference, and so, as Jess brings that up, I went ahead and made the OY correction in the verbiage.

CHAIRMAN NANCE: Ryan, this is -- We're doing the -- We were doing Item Number XIV first.

MR. RINDONE: That's right, because of Sean's thing.

CHAIRMAN NANCE: Yes. I'm sorry.

MR. RINDONE: Sean is very special today. Excuse me.

CHAIRMAN NANCE: Item Number XIV, and I was wondering why we were seeing XII, and this is the one we're going to do first.

MR. RINDONE: Okay.

CHAIRMAN NANCE: Thank you very much.

MR. RINDONE: Dr. Lisa Ailloud is predisposed at the moment, with a newborn, and so Dr. Siegfried is here to help us out with the updated catch projections for gag, based on that alternative SRFS run that you guys looked at in July, and these updated projections will be considered for -- Are being considered because of a revised sector allocation proposed by the council that would use the SRFS run and the historic reference period used for the sector allocation for gag, and that results in sector allocations of 65 percent recreational and 35 percent commercial, based on landings from 1986 to 2005.

As part of its work to develop a rebuilding plan for gag, the council considered several other reference periods, like 1986 to 2009 and 1986 to 2019, and found those reference periods to result in pretty similar sector allocations, despite using the additional years of information, and so Katie is going to present four different scenarios, the minimum time to rebuild, noted as Tmin, with fishing mortality set equal to zero, and we now know that's equivalent to eleven years. Then 75 percent of F at 40 percent SPR, which is the current proxy recommended by you guys for MSY, and I think that's eighteen years now. Tmin plus one generation period, which is eight years for gag, and I think that's nineteen years now, and then Tmin times two, which is twenty-two years.

You guys should ask questions and evaluate the projections and determine whether they're consistent with BSIA and suitable for management advice.

CHAIRMAN NANCE: Thanks, Ryan. Katie, go ahead, please.

DR. SIEGFRIED: Thank you, everyone. I am not with child, and so I'm here. Mine is thirteen, and so she's home and good. Again, thanks for having us here to present these projections. We've been in contact with council staff and the SSC quite a lot about gag, because it needs to get a rebuilding plan, and so we're happy

to present this recent council request.

This is just a little bit of background and timing. At the July SSC meeting, you will recall that we discussed allocations in CHTS units, and we showed those with -- That's calculated based on average landings from 1986 to 2005 and then, in that Reef Fish Amendment 30B, it's 61 percent recreational and 39 percent commercial. The first management year was 2023, and the fixed interim catches were 2020 to 2022, and so the terminal year of the assessment was 2019.

The new council request is an allocation based on the SRFS units, which has average landings also from 1986 to 2005, but it's much more similar than FES units that we've presented in the past two CHTS, and so 65 percent recreational and 35 percent commercial. The first management year though is 2024, and then the fixed interim catches go from 2020 to 2023, and we did have to -- It was suggested that we constrain 2023 interim landings to the emergency rule, 661,000 pounds gutted weight. It's an emergency rule and not just an interim rule, rule?

MR. RINDONE: No, it's an interim rule. Amberjack has an emergency rule.

DR. SIEGFRIED: Sorry about that. Interim rule. In order to use that interim rule landings value, Lisa did have to separate it into the commercial and recreational, and it's not just a simple split, and so she drew out a schematic for you here. To take the 35 percent to commercial, the value in gutted weight is there, but we also take the average proportion of the observed landings in weight, based on 2017 to 2019, and so it's 65 percent vertical line and 35 percent longline, and so the values there on the left, in the green boxes, are consistent with the allocation in the model.

To the right, in the purple boxes, is the way that she separated out the 65 percent recreational allocation, and so it's the average proportion of the expected landings in weight based on that 2017 to 2019 -- Those values, and so it's 2 percent headboat, 17 percent charter boat, and 81 percent private/shore mode. Then divide the landings in weight by average weight of fish in each fleet, and that's also based on those same years, to obtain the numbers of fish, and so we have those values in weight there for headboat, charter boat, and private/shore, and then, on the bottom, you can see the number of fish.

Here are the projection settings in the table that you're familiar with. The relative F measures weren't used, because there was

those interim catches, and the selectivity and retention were used from 2019, because there were time blocks before that, and the recruitment is coming from a Beverton-Holt stock-recruit relationship, but we've discussed that with you all three or four times now for gag, in particular.

For interim landings, she highlighted, here in red, where changes were made from the last time that you saw projections, and so 2023 is a new assumed interim year, and that's the interim rule landings, and then there were some slight changes to some of the values for 2023, based upon the new means. Again, the allocation ratio is 35/65 commercial to recreational, and the red tide is the medium red tide scenario that we've discussed before.

Here's the MSRA, or status, table for you. If you recall, we used F 40 percent for gag, with medium red tide, and so this is all of the outputs from this new run, and it's still overfished with overfishing, and this is here for completeness, and it's also in the document. I can pause, if there's any questions about particular values, but I think it's just updating the table for you.

Then here are the figures that Lisa has provided the past as well, to show you the relative MSST to the SSB F 40 percent from the assessment period and then the expected recovery during the projection period, both for SSB and then the decline of fishing mortality in the projection period down to F 40 percent SPR on the right.

Here are the OFL projections, and this is fishing at F 40 percent SPR, and the action is in the box at the bottom, and the 2024 to 2028 are the projected values of most interest to you all, we assume, and the yield is the second-to-last column there.

CHAIRMAN NANCE: Roy, please.

DR. CRABTREE: I guess this would be for Ryan, maybe, but maybe you have it, and how different are these yields from the 30 percent that we looked at?

CHAIRMAN NANCE: No, we did 40 percent, Roy.

DR. CRABTREE: Did we do -- Okay.

CHAIRMAN NANCE: But, because of the allocation difference, there will be some minor changes, and so, last time, remember we had the F 40 percent SPR.

DR. CRABTREE: I've got you.

CHAIRMAN NANCE: Then this is just a change in allocation, but there will be -- There is some differences, for sure, but they're minor.

DR. SIEGFRIED: Yes, and it doesn't hurt to reiterate some of the things you said, Jim, and so, yes, we're not going back to -- We didn't do anything at F 30, but we've got the SRFS allocation, the SRFS-based allocation, and we've got the interim rule now, and so we assume those landings actually occur in 2023, and then the beginning of the management is 2024. It should be the million pounds gutted weight.

DR. CRABTREE: The yield.

DR. SIEGFRIED: Yes.

CHAIRMAN NANCE: Okay.

DR. SIEGFRIED: I can double-check that, but -- My previous assessment was million pounds gutted weight, but I can double-check that, real quick. Any other questions? Okay. Yes, it's million pounds gutted weight.

This is the F0 projections, to show that the Tmin -- Where the Tmin is, and it's still at eleven years. Here's the F rebuild, with the one option of Tmin plus one generation time, and I think that the preferred, or I don't mean to use official language, and I just mean what I heard the group leaning towards, was the Tmin times two, and so this is the F rebuild Tmin times two and the yield stream, in the second-to-last column, and then there was one other option of the 75 percent of the FMSY proxy.

CHAIRMAN NANCE: Last time, Katie, we just sent these tables to the council, saying that, basically, the science behind each was acceptable, and then gave the council the option to choose the rebuilding plan that they would go with, and then, once the council, last time, saw those projections, they then wanted to see them with the change in allocation, and so that's the difference here.

DR. SIEGFRIED: Yes, and I was thinking more of what the council's preferred and not you, and I know that you all don't have a preference amongst their options, but the three options are here consistent with SRFS. That's my last slide.

CHAIRMAN NANCE: Perfect. Okay, and so, basically, what we have

here is, as you remember from our last meeting, when we talked about gag, we did F 40 percent SPR, and then we had these tables built with those, with the allocation of what it was, and I can't remember what it was, but then the council came back with this reallocation, a little more recreational than commercial, and changed those, and so these are the tables that are produced with that change in allocation.

One thing I really appreciate is Lisa building that one table to show the poundage out, and it wasn't a simple thing, and I really appreciated that, because it made it very clear, and so any discussion on this? I think, from a motion standpoint, we're talking about is this acceptable? Do we see anything incorrect with the science behind, or the math behind, this and whether this is an approved -- Whether we're recommending this for use in deliberations by the council to set limits. We'll go ahead and discuss that, and then we need a motion to be able to say that.

MR. RINDONE: Jess, can you bring up that Excel file that has everything all in one spot? That might be just as easy for the SSC to look at.

CHAIRMAN NANCE: Good suggestion. Luiz.

DR. BARBIERI: Thank you, Mr. Chairman. Ryan, perhaps, just to make things go a little easier and faster, is there a way to pull up the motion that we made the last time and just change the values to reflect the updated allocation?

MR. RINDONE: We're going to bill everything to Sean today, and so we can do whatever we want today.

CHAIRMAN NANCE: Well, let me ask you this though, because we did not -- While we had this table, I don't think we said anything about the motion, but let's look at the motion first.

DR. BARBIERI: I think we had a motion to basically define what the catch levels would be for the interim rule.

CHAIRMAN NANCE: No, and this would have been the last meeting, and so, while we're pulling that up, Doug Gregory, please.

MR. GREGORY: Thank you. Good morning. It seems, to me, the discussions we've had about our nervousness about making allocation recommendations -- It just seems, to me, that what we might want to consider to do for the council is to tell the council that the tables we saw at the last meeting, and recommended, or the tables at this meeting, are equally viable, and not choose

this new allocation over the old allocation, but just punt it to the council and say they're both scientifically valid, or best available information, however we want to word it, and just let them decide what they want to do. Thank you.

CHAIRMAN NANCE: Yes, absolutely, and I probably wasn't clear in my wording, but that's exactly -- Because all we're doing here -- We blessed those tables last time, and we're saying that these tables are best scientific information for this allocation, not choosing an allocation or a rebuilding schedule. Luiz.

DR. BARBIERI: Well, and, Doug, to your point, that I don't disagree with, but, if we have already provided the council, you know, the projections for the catch levels for the interim rule for the previous allocation, they already have that in their possession, because they reviewed the assessment, or, I mean, they reviewed our review of the assessment during this last meeting and accepted our recommendations in accepting the assessment results, and they requested new projections that reflect the allocations that were generated by this additional run, and so they asked us to approve a next set of catch level recommendations, and they have both of them, I would say, right now, to make that choice, Doug.

CHAIRMAN NANCE: Yes, and I think -- Let's go ahead and bring up our motion from our last meeting, just so we're comfortable with what we said, and then we can craft a new one to match it, making sure that the council understands that we are not saying this allocation scheme is better than the other one, but it's just scientifically valid.

MR. GREGORY: Mr. Chair, may I respond, briefly?

CHAIRMAN NANCE: You bet, Doug.

MR. GREGORY: I understand that, but I've also read some documentation, regarding red grouper, where National Marine Fisheries Service, I believe, claimed that the SSC approved the allocations that were considered, and so that made me a little nervous. Thank you.

CHAIRMAN NANCE: Roy.

DR. CRABTREE: It just seems, to me, that we craft a motion that starts with, if the council selects the 65/35 allocation, then this.

CHAIRMAN NANCE: Okay. This is the motion we had last time.

MR. RINDONE: Last time, we kind of went step-wise through things, and, at this point you guys have still accepted the alternative run as being BSIA, and what changes at this point is the projections, because the projections are informing, and fixing, what the allocation will be in the future and not what was realized in the estimated landings of the model, but what it will be in the projection years, moving forward, and then, also, changing the MSY proxy to 40 percent SPR and inputting and fixing landings for 2023 at 661,000 pounds gutted weight, in accordance with the interim rule, and so there's a few different changes that have been made there, and, to the degree that you guys want to notate that in your new motion, which I think Luiz sent to Jess, and you guys can certainly add in as much extra information as you want to, to be as explicit as you think you need to be.

CHAIRMAN NANCE: Thank you very much. It's good to see this from last time, so we have that. Jessica, could you bring up Luiz's motion and post it, please? Luiz, if you would read that, and then we'll ask for a second, please.

DR. BARBIERI: Sure thing, Mr. Chairman. **The SSC determines that the yields corresponding to the rebuilding schedules based on Tmin, and that would be eleven years at F equals zero, 75 percent of F 40 percent SPR, which would be corresponding to eighteen years, Tmin plus one generation time, which is eight years for gag grouper, nineteen years total, and Tmin times two, corresponding to twenty-two years total, are appropriately calculated and the five-year OFL and ABC yield streams associated with those rebuilding timelines for 2024 to 2028 are suitable for informing catch advice.**

CHAIRMAN NANCE: We would have to put the allocation in there, and so let's go ahead and wordsmith that one in.

DR. BARBIERI: The rebuilding schedules calculated using --

CHAIRMAN NANCE: Okay, and so up there between --

DR. BARBIERI: After "schedules", Jess, "calculated using the allocation of 35 percent commercial and 65 percent recreational", right?

CHAIRMAN NANCE: Yes. Will.

DR. PATTERSON: I think, to capture what Roy was after earlier, instead of saying "calculated using", we should say something like "predicated on the council's choice of the new allocation.

CHAIRMAN NANCE: Luiz.

DR. BARBIERI: To that point, Mr. Chairman?

CHAIRMAN NANCE: You bet.

DR. BARBIERI: Will, all we are doing here is providing a second set, right, and so has the council made a final decision?

CHAIRMAN NANCE: No.

MR. RINDONE: No, and we went through the exercise, using the data the Science Center gave us, in August, to look at how those percentages change based on the application of the SRFS landings data to the 1986 to 2005 reference period, and I think the greatest deviation was like one-and-a-half percent, for all the different years that we had looked from the current reference period, and so the council decided that they didn't think that there was a difference there, and to just use the current reference period and apply the SRFS data to it.

They will, ultimately, look at retaining the current sector allocation, and managing in SRFS, or updating the current sector allocation using SRFS and the previously-applied reference period, and so there's two viable options that they have.

DR. BARBIERI: Right, and, real quickly, this is why I'm saying "calculated using the allocation", because, I mean, this is really the automatic, right, that's coming out of the assessment and an update and the calculations, and it doesn't involve, really, any particular choice, explicitly.

DR. FRAZER: Yes, and, I mean, the important point here is that the council hasn't made a choice yet.

CHAIRMAN NANCE: Will.

DR. PATTERSON: I just think it's important for us to put something into this that says we're not advocating for a change in allocation, that we haven't reviewed anything that suggests the science behind that.

CHAIRMAN NANCE: Ryan.

MR. RINDONE: So you could say, "The SSC determines that the yields corresponding to the rebuilding schedules calculated using the council's specified allocation option of 35 percent --"

DR. BARBIERI: No. I'm sorry, but this is incorrect. I mean, that choice hasn't been made, procedurally, right, and it hasn't, and so, Will, I understand your point, but all we are doing here is updating calculations that came out of a stock assessment, right, and so the council reviewed our recommendations that came out of the assessment, in terms of catch levels, and said, okay, to accept this new assessment, it implies the allocations that were determined by that assessment, the same way that the previous one had been, and we are actually just refreshing -- I mean, we don't express here any choice whatsoever, and we are saying that they are appropriately calculated, in my view, Will, I mean.

DR. PATTERSON: Yes, I understand your perspective, and I differ. Sorry.

CHAIRMAN NANCE: That's fine. John.

DR. FROESCHKE: What if you did, in that first sentence, where it says, "the schedules" -- Instead of "calculated using", you could say "based on", and just "based on the following scenarios:", and then you just list out those settings.

CHAIRMAN NANCE: I am going to ask -- Do we have a second for this motion? John, thank you. We have a motion made by Luiz, and we have a second by John Mareska, and so we can -- Let's go ahead and discuss this. Will, please.

DR. PATTERSON: To Luiz's point about this is just, you know, stating what the output is, that's true, and, if this motion carried, then we would have to be careful, in the report, to give the balance of the discussion.

CHAIRMAN NANCE: Absolutely.

MR. RINDONE: I'm crafting that right now, and, when I'm done with that, I'm going to read it to you, and you can tell me what you think.

CHAIRMAN NANCE: Roy, please.

DR. CRABTREE: I think, if you just put some explanation in the report, which says clearly the choice of allocation is the council's to make, and we've already given you numbers for the status quo allocation, and here are the numbers for this allocation that you've requested, and I think that's fine, and I think it can just be in the report.

CHAIRMAN NANCE: Okay. Yes. Doug, please.

MR. GREGORY: Thank you. Yes, and I was going to take a different tack, and I really don't see any substantial conflict between what Luiz has proposed and what Will is proposing as a change. Maybe the exact wording is not that important, and so I would ask the maker of the motion -- I mean, what heartburn do you have about what Will is proposing, or is it just that it's different? I mean, I don't understanding why what he's proposing challenges or really changes what the motion is, I mean, other than adding stuff to it, and so I will put that burden on Dr. Barbieri.

CHAIRMAN NANCE: Go ahead, Luiz.

DR. BARBIERI: Thank you, Mr. Chairman. Doug, so here's the thing, and maybe I missed, right, the details of what Will said, but I'm trying to be very explicit here that what we received does not involve any choice, and so the word "calculations" -- I mean, this was really running the math and the equations, right, and so -- That followed those parameters, and so it's a calculation. They used a revised allocation resultant from using a new data series for the assessment, and so, to me, it's very explicit, in that sense, and it doesn't really encroach into any choice regarding allocation, and so, in this -- In my view, this remains completely neutral.

CHAIRMAN NANCE: It's very similar to what we did for king mackerel.

DR. BARBIERI: Right. Exactly.

CHAIRMAN NANCE: We had four different scenarios. Ryan.

MR. RINDONE: This is what I have typed up to go into the report, if this motion were to pass, and so the SSC acknowledged that the request for updating projections using an alternative sector allocation of 65 percent recreational and 35 percent commercial, based on the SRFS landings and discards from 1986 to 2005, came directly from the council, based on council discussions at its August 2022 meeting. The SSC stated that allocation decisions are expressly the purview of the council and that it was up to the council to determine which sector allocation scenario it ultimately prefers.

CHAIRMAN NANCE: Excellent.

MR. RINDONE: Does that pass the sniff test?

CHAIRMAN NANCE: Yes. Is that okay, Sean?

MR. RINDONE: Those two sentences would come before whatever motion it is that you guys ultimately come up with, but it would be part of the report.

CHAIRMAN NANCE: Doug.

MR. GREGORY: Thank you. **Again, to Luiz's point, I mean, what about just inserting, between the words "the" and "allocation", in the second line, "the council-requested allocation scenario"?** I mean, again, I am nervous, because I have seen legal documents that have proclaimed that the SSC has approved a certain allocation, or this allocation, and, as Will said, without -- This is not that big of a deal, as far as percentages go, unlike red grouper, but, still, it's just the point that what we say is important.

Now, we're not saying, and Luiz is not proposing, this is the best available science, and this is just saying that it's suitable for informing catch advice. I don't disagree with that, and I think that what we recommended in the last meeting was suitable for catch advice as well, and I hate to be so picayune about this, but it's being used in legal documents, and what we do in our motions carry that kind of weight. Thank you.

CHAIRMAN NANCE: I am just going to say that everything we do, regarding allocations, is at the council's request. I mean, when we did it last time, and I don't know what the allocations were, 34/66, or whatever it was, those were based on the council recommendations. Roy.

DR. CRABTREE: I don't have any problem with inserting the "council-requested" like that, and, personally, I think we're getting too wound up on this, and I don't -- There's always going to be someone out there who is going to misinterpret what we do, but I think we've addressed this.

CHAIRMAN NANCE: Yes, and I hear what Doug is saying, and I think, from a stand-alone motion, that it's good to have that in there, so it's clear. Luiz.

DR. BARBIERI: Right, Doug, and I'm not against adding anything that would clarify that this is not, you know, our explicit recommendation, in terms of allocation to the council, and I don't disagree, but that administrative record exists, because there was an official letter from the council to the Science Center requesting this run, right, to generate new projections, and so,

I mean, that, to me, sets the record clear, unequivocally, right, that that's why we are making this recommendation.

CHAIRMAN NANCE: So let me ask this. Will.

DR. PATTERSON: So has the friendly amendment that Doug offered been accepted, or is it being rejected?

CHAIRMAN NANCE: Well, I'm going to ask that question right now. Luiz?

DR. BARBIERI: Can we just see how it would read, or where that language would be inserted?

CHAIRMAN NANCE: It's right there. It's already in it, Luiz.

DR. BARBIERI: **Yes, absolutely. No problem whatsoever.** Thank you, Doug.

CHAIRMAN NANCE: Okay. John, any problem? Okay. Perfect. Let's go ahead and I'm going to just ask, and is there -- I'm going to read the motion. **The SSC determines that the yield corresponding to the rebuilding schedules calculated using the council requested allocation scenario of 35 percent commercial and 65 percent recreational, based on Tmin (eleven years at F equals zero), 75 percent of F 40 percent SPR (eighteen years), Tmin plus one generation time (eight years for gag grouper, nineteen years total), and Tmin times two (twenty-two years total) are appropriately calculated and the five-year OFL and ABC yield streams associated with those rebuilding timelines for 2024 through 2028 are suitable for informing catch advice. Is there any opposition to this motion?**

MR. GREGORY: Mr. Chair, if nobody opposes it, I don't see a need for a roll call vote, but I opposed the stock assessment, and so I oppose this, and I think we're going down a dangerous track here by ignoring the actual recruitment indices that we've seen in the past and going to combining sexes and jumping from Tmax to 40 percent. I opposed the whole trend, and so it's not specifically this motion, but just the whole stock assessment direction we're going in. Thank you.

CHAIRMAN NANCE: Thank you, Doug. Ryan, do we need, just for procedural -- Okay.

MR. RINDONE: If he's the only one, the motion carries with one opposed.

CHAIRMAN NANCE: Okay, and so we'll put that, Jessica. **The motion passed with one in opposition.** Thank you. That was a good discussion on gag, and I think it will be set up for the council for Dr. Powers to discuss. Harry.

MR. BLANCHET: Thank you, Mr. Chair. Before we get off of gag, what we said to the council last time -- I don't know if it has the 2023 projected harvest that we used for this scenario. I don't think we need to go back and revisit that whole thing, but I think we should before it goes to the council in a final form, to make sure that they have the equivalent values that we sent them last time with the corrected recovery dates and projected landings under that scenario that we sent last time, because I'm not sure that it's the same as what we have here.

I think we had twelve years at F zero, and a few other changes, and I think that a lot of that has to do with that 2023 landings, and so I'm just saying that make sure that the two are both talking the same language on those inputs. Thank you.

CHAIRMAN NANCE: Harry, that's an excellent point. We'll make sure that that's done. Thank you for suggesting that. Okay. We'll go ahead and move into scamp. I think we'll go ahead and bring up those motions.

MR. RINDONE: Well, I think Harry brings up a good point, and I guess, with running multiple projection scenarios, this was one that we would have needed also, which is 40 percent, using the current allocation scenario and 661,000, so that Alternatives 2 and 3 will be commensurate. I guess my curiosity is does that need to come back here or not, because that would fall within the range of things that you guys have already discussed. Is Carrie's hand up? I would be interested to see if Carrie's hand is up, but I think it falls within the range of the things that you guys have already approved as being suitable. Harry's hand is up.

CHAIRMAN NANCE: Harry, please.

MR. BLANCHET: Yes, and my perspective was that we had already reviewed it, given those data inputs that we were provided at that time, and I didn't -- You know, we just basically are changing -- In this scenario, we are changing what that 2023 data point is, and I just think that we need to, in any other inputs that change -- We just need to be sure that all of those are consistent, so, when the council is looking at it, they are looking at everything in an apples-to-apples consideration and not having some things with one set of presumed landings and another with another set of presumed landings that are going to make a difference going

forward.

Again, I don't think that that's anything that we need to go back and take a look at, because we're not changing the calculations, and we're not changing the methodology. We're changing a couple of the inputs, and those changes have also been reviewed by us. Thank you.

CHAIRMAN NANCE: Harry, I agree. Ryan.

MR. RINDONE: I think just another thing to point out, I guess just for the record, is that, by going from assuming the average of the previous three years for 2023 to assuming the interim rule's 661,000 pounds, that it actually gets that rebuilding started much sooner, and it has a positive effect, biologically, on the stock, and so, given the SSC's, you know, responsibility for setting the OFL and the ABC and taking the science into account, and that certainly would be to the benefit of the stock for including that, and so we'll work with the Science Center to get that 661,000 run for the current sector allocation under 40 percent SPR, and we'll get those projections, and we'll have those in the document for the council to review.

REVIEW: SEDAR 68 OPERATIONAL ASSESSMENT FOR GULF OF MEXICO SCAMP (CONTINUED)

CHAIRMAN NANCE: Thank you, Ryan, because it's important that it's the same currency and the same years, so that it is apples-to-apples, and, Harry, thanks for bringing that up. Now we're going to go to the SEDAR 68 operational assessment for Gulf scamp. We have a motion that was made yesterday, and we have a substitute motion, and Jim had a suggestion of how to move forward, and I would like to hear from him.

DR. TOLAN: Thank you, Mr. Chairman, and I gave this a little thought last night, and, given the task that was presented to the Science Center, in terms of the stock assessment, I hate to lose that by moving forward with the substitute motion automatically, and so I think -- I'm not sure who made the substitute motion, but my suggestion is to withdraw that, but just temporarily, and just hold it off to the side.

We recognize that the work that the Science Center did, that the stock is not overfished or experiencing overfishing, given the sideboards of the TORs that they operated under, and so I think we should acknowledge that, but then come back with another motion that is basically the same as the substitute motion that says this body has deliberated, and we think it really ought to be at the F

40 percent SPR level and move forward with a different recruitment estimation, and so I just hate to lose that first part of it, because, if we accept the substitute motion, then the original one just goes away, if I'm correct. Thank you.

CHAIRMAN NANCE: Thank you, Jim. Luiz, I think this was your motion. I can't remember, and was it Paul that seconded it? I can't remember. Anyway, Luiz. Jessica, do you have who made that? I'm sorry that I'm asking you that. Okay. Thank you. Luiz, go ahead and respond.

DR. BARBIERI: Jim, I don't disagree, right, and so, I mean, the idea here was to, for the sake of efficiency, so to speak, to put that accepting the assessment for the SEDAR 68 operational assessment, including the stock status determination, as consistent with the best scientific information available, and it would basically say we didn't see anything wrong, and all the methodology is used, and everything was acceptable, right, but it's simply a matter of us using our judgement to make to the council a recommendation on a potential change of the reference point.

I am not opposed to doing it, and it would just take two steps, and my concern before was -- You know, this may not be warranted, but it was the council not understanding that, by accepting that, and then proposing something else -- I mean, explicitly, with the F 30 percent in the motion, as it was before, and then proposing a 40, and they're going to say, okay, what are you guys recommending here, and so decide to take that F 30 percent reference point from the first part of that motion, if that makes sense, Jim.

DR. TOLAN: To that point, it certainly makes sense, and, again, this sort of friendly -- It's not even an amendment, but it's simply it's up to the motioner to withdraw it, to allow us to go forward to make it into two different motions, because I just think, in the second one, we don't actually give the status determination. It's not even listed in there, and it just says here's what it is, and so it doesn't say that the stock is not overfished or undergoing overfishing, the way I'm reading the second substitute motion.

CHAIRMAN NANCE: One of the reasons that it reads like that is we haven't seen it yet. Mike, please.

DR. ALLEN: Thank you, Mr. Chair, and so one way to handle this substitute motion is it seems like, really, this is not necessarily about scamp, and, I mean, it is in this example, but part of what

we're trying to accomplish here, I think, is to say that, for species that have very similar life histories, very similar habitats, those kinds of things, that we want the -- That we should consider the same reference points, and so I think maybe that's a way to go forward, is to make a more general motion after this original motion.

CHAIRMAN NANCE: I think, from what I'm hearing, is the first motion basically is we, as a body, accepting what was asked. The Center did the analysis, and that's what was asked for, and we approve it. The second motion, we're going to hear what F 40 percent SPR gives us, and we'll be able to talk about that and then have a motion on that. John.

MR. MARESKA: Thank you, Mr. Chairman, and so I'm reading the stock assessment report and the terms of reference, and, under 2(a)(5), it says, if different status determination criterion are recommended, provide outputs for both the current and recommended status determination criterion.

CHAIRMAN NANCE: Thank you, and we'll have those. Doug, please.

MR. GREGORY: Thank you. I have no problem presenting all the runs to the council and saying we would like to explore the 40 percent SPR at the next meeting, or as soon as we can, because we really haven't looked at the life history of this species. You know, we jumped on this with gag, and, as I've said before, I think for some of the wrong reasons, but, at least with gag, there was empirical evidence that there might be some sperm limitation, even though there was years and years of high recruitment, but, with this species, there is no indication of sperm limitation, and we haven't looked at the sex ratio stuff, to say is there a problem here, and then, in 2019, we did review the Harford paper that did some simulation analysis that suggested that groupers, or hermaphroditic species, should be handled more cautiously, and that's not new news, but the SSC's reception of that was lukewarm, if my memory is right.

We didn't really reject it, and we didn't really accept it, and it was just a presentation, and so, before we make a change like this, after all these years, I think we need to have some more review and discussion of it and come to a conclusion that this is what we want to do, going forward, for all groupers, or all hermaphroditic -- Protogynous hermaphrodites, and this is just kind of off-the-cuff.

It was recommended by somebody, or suggested by somebody, of how come you're not considering this, and we just jumped on it, and

I'm not saying it's the wrong direction, but I don't think we should put it forward as the proposal from us without further review and thought. Thank you.

CHAIRMAN NANCE: Thank you, Doug. Ryan.

MR. RINDONE: Thank you, Mr. Chair. I just wanted to remind the committee that a complete characterization of scamp's life history has been detailed through the research track and operational assessment, and those have both been available for public and committee review for some time now. We have not had a more global review of all serranids and commensurate life history characteristics of grouper congeners that occur in the Gulf, but the life history of this species, as far as what's known anyway, was thoroughly reviewed as part of the almost three-year assessment process that this species went through.

MR. GREGORY: To that point, Mr. Chair?

CHAIRMAN NANCE: Yes, please.

MR. GREGORY: But we have not openly reviewed it and discussed it. I'm sure that most of us have read some of those documents in private, but we haven't discussed it, and it's not -- We haven't used any of it as a basis for this decision.

MR. RINDONE: Well, the opportunity to do that is before you now. All that information has been provided, and so, if there's any of it that any committee members want to discuss, the information has been made available to you to bring any of those issues up now, because the SSC constitutes the peer review body for this operational assessment, and so it's up to you to make those decisions here, and, if there's any revisions that are required, under whatever circumstances, to recommend those revisions to the Science Center, so that they can work on that.

CHAIRMAN NANCE: Thank you. Jim.

DR. TOLAN: Mr. Chairman, to me, that's the heart of the substitute motion.

CHAIRMAN NANCE: That is.

DR. TOLAN: We think there needs to be a change. We accept the 30 percent, and we accept the work that the Science Center was given under the original TORs, and we think this is the status determination, but, as a review body, given the life history -- That's the substitute motion right here, and so I think it needs

to follow. Thank you.

CHAIRMAN NANCE: I agree. Go ahead, Luiz.

DR. BARBIERI: Doug, just to get back to your point, just so I understand you properly, Doug, and I don't necessarily disagree with your point, but I'm just trying to understand, procedurally, how would we handle this here? Would we accept this assessment, with the original motion, given the original reference of F 30 percent SPR, and then make catch level recommendations, apply the control rule, right, to make catch level recommendations and proceed, or -- Then develop some kind of a review process through our next meeting?

CHAIRMAN NANCE: No, and here's the issue is, while we have F 30 percent SPR run, the projections are not with our recommended recruitment, right?

DR. BARBIERI: I understand that, but --

CHAIRMAN NANCE: So we're not going to see that today.

DR. BARBIERI: Right.

CHAIRMAN NANCE: Go ahead, Luiz. Maybe I am misunderstanding you.

DR. BARBIERI: Yes, because what I'm trying to -- I am trying to understand what Doug's recommendation is, and he's basically saying, and I don't disagree with the F 40 percent SPR reference point, not completely, but I just feel that we need to have further discussion of this issue, to basically document that choice more thoroughly, and I'm trying to see, okay, we're reviewing this assessment now, right, and so how do we proceed with our recommendation to the council, in terms of management advice, if we're already thinking about changing reference points at some time in the future, and do you know what I mean?

MR. GREGORY: Yes, I understand, and that's what I had in mind, that we should have a more directed conversation about this, which we haven't had, not even in 2019, when we were presented the simulation studies, and this substitute motion says that the SSC requests that we get projections using 40 percent, but we have those before us now, and my concern is that the next step this body might take is to accept that 40 percent and make those recommendations to the council without really a full understanding that is required.

CHAIRMAN NANCE: Katie, please.

DR. SIEGFRIED: I appreciate your point, Doug, and Luiz and everybody, and I appreciate Jim's comment, because I do think this is a multipoint process, and so the reviewers for the research track didn't have any input, obviously, for benchmarks, and they wanted to look at the model, and they wanted to see how well the model fit the data, and we even talked about, you know, fixing those recruitment devs in the terminal years and all of that good stuff, and that's what you all saw last time.

This time, the only thing that we had to go on, for benchmarks, is what was in Amendment 48, and so that's what was presented, but you all are the ones that need to recommend a benchmark for this, and we, as a Science Center, presented the Harford paper before, and we've presented all the work on gag, and we've, like Ryan said, presented all the life history, and we can accommodate requests for alternative benchmarks to what's in the amendment, and, I mean, I see that as one of your key roles.

I worry about ignoring the results of this for a long time while that discussion occurs, but, of course, it's not my place to say how long you discuss that, and I have the projections, with the original projection settings that I showed yesterday, in F 30 and F 40, and I even did an MSY run for Doug, to show what the relative SPR is compared to the MSY, but the MSY is assuming the steepness, and so I have a lot of stuff to show you that might help you with this discussion, and I don't know if it will end today, but all of that will help you finish up what you want to do with your substitute motion.

CHAIRMAN NANCE: Okay. Thank you. Harry.

MR. BLANCHET: Thank you, Mr. Chair. My concern is very much along where Doug was going. When we -- Essentially, with 40 percent SPR, it seems like we are moving toward using that much more generally, at least for those groupers.

Back in 2019, we did a review, and it was part of our agenda, to take a look at reference points, and we did not, at that meeting, say anything about accepting 40 percent SPR as being appropriate for groupers, and I think that, if we are going to take that kind of a global approach, then we should have a meeting agenda that has an item on it explicitly saying that we're going to be taking this as a global -- We are considering this option as a global approach for managing groupers and evaluating the science behind it.

We can reflect back on this -- Actually, this was actually one of

our first webinar, I believe, SSC meetings, but, at any rate, the point being that, I think, if we're doing this in a general sense, it does need to have public notice that that's what we're doing and not just coming in as we're reviewing a couple of the more important species, and it should be in there as part of our published considerations. Thank you.

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

DR. PATTERSON: Thanks, Mr. Chair. Harry, I don't know that I would go so far as to suggest this is a global change, or that, you know, we would be applying this globally to other species. Scamp is remarkably similar to gag in life history. They live about the same length of time, and they live mostly in the same habitats, except for the juveniles, and they're sex-changers. We're seeing evidence of changes in male age composition estimated in the population, similar to what gag experienced leading up to the current situation of such a low percentage of males.

These are really just two species that have remarkably similar life histories, and so the corollary then would be, if gag is managed with an FMSY proxy of F 40 percent SPR, why wouldn't scamp, and, you know, Doug mentioned ideas about red tide and other issues with gag, and, sure, those exist, but the life history information is what led me to believe that F 40 percent was a better approach, and we've had that discussion through the years.

You know, the couple of meetings that have been cited aren't the only time that we've discussed this, and I have always thought, you know my personal scientific opinion, was that F 40 percent was a more realistic proxy for scamp and gag.

CHAIRMAN NANCE: Thank you, Will. Luiz.

MR. BLANCHET: I would throw in that recruitment patterns are remarkably similar between the two species as well, looking not necessarily year-by-year, but overall, and you've got similar patterns of high recruitment in the 1990s, and followed by a low recruitment pattern in the last several years, and that's another point that I'm going to bring up later, but it's just that, if we are taking this approach, then I think that it should be something that should be part of the public notice of the meeting, and that's all.

CHAIRMAN NANCE: Thank you, Harry. Luiz.

DR. BARBIERI: Harry, that's an excellent point, and I think it makes sense, but I think we envisioned, right, this type of process

happening at this stage when we reviewed the draft Amendment 48, or the different draft, for as long as we have discussed Amendment 48, for stock status determination and reference points, working with the council back and forth, and we explicitly wanted to make clear, in that amendment, that, because -- Really, we're talking about these proxies as proxies for an MSY, right, estimate that may or may not be directly calculated, if steepness cannot be directly calculated.

We left the door open for, during review of the assessments, that the SSC would apply its professional judgement in making recommendations to the council regarding the most appropriate proxy for that MSY, and so, John, if you don't mind, do you have some of that -- Because, yesterday, it came up when you had the Amendment 48 language there, right, that talked about how we would proceed, in terms of advising the council on reference points and proxies.

MR. BLANCHET: Well, I agree with your comment, and I agree that that is all there. I am just saying that it should be more clearly public noticed.

DR. BARBIERI: Right, Harry, but I -- Of course, different people are going to have differences of opinion about this, but I disagree that, in this case, we are making a more general statement towards all the groupers. Basically, the way that we set up this process was assessment-by-assessment. As we see, right, what the values coming out of the assessment are, and what we think would best represent proxies for the MSY, given the assessment results, that that's when we would exercise that judgement.

CHAIRMAN NANCE: John.

DR. FROESCHKE: So, regarding Harry's comment, the MSY and other status determination criteria are the council purview, and so, in terms of noticing, any changes to that would be made available, and it would be part of the gag rebuilding plan, and so there would be lots of notice for public comment, but that doesn't -- The way that Amendment 48 was set up was to streamline, in situations where the SSC thought that a different reference point was more scientifically appropriate -- They could provide the advice at that time.

If the council concurred, and, in cases where they felt like there is one appropriate MSY proxy or other, they could just do that, and provide the catch levels based on that. The council, if they agreed with that, could just note it and prevent the obligation to consider NEPA-style analysis, where you have to evaluate

alternatives for MSY proxies, or MSY, that aren't supported by the science.

In this case, it seems to me that the SSC could make catch advice based on whatever SDC they felt were appropriate, and those could be recommended to the council. If, for example, SPR 40 was -- That was what was recommended, and the council disagreed, they could come back and ask and say, hey, no, we really want to stick with SPR 30, and please provide the OFL and the ABC at that time, but I don't think it's necessary.

I mean, for the purposes, I don't think it would be unreasonable to provide catch levels at SPR 30 and SPR 40 and notate in the report that these are provided for comparative purposes. However, the evidence suggests, based on the life history and all this other rationale that you guys have discussed, that SPR 40 is the appropriate scientific reference point, and these are the catch levels that we recommend, and then that would allow the council to have the information necessary for the NEPA analysis, and they would know where you all stand, and, if they concurred with that, that could be the end of it.

CHAIRMAN NANCE: Thank you, John. Doug.

MR. GREGORY: Or course, I agree with Harry, and he speaks better than I do, and, you know, if you look at -- I think we should get to Katie's work, and, when you look at it, the F of 40 percent behaves very nicely, as a projection, and so does MSY, and I thank you, Katie, for doing the MSY, and, I mean, it's in the same ballpark, and it does lead to credence that, when we can calculate MSY, maybe we should be doing MSY, instead of these proxies that we really don't know exactly how they relate to MSY, and the work that was done on that was thirty years ago, and so I think -- This whole conversation got started because somebody said let's change the substitute motion and just have it as a separate motion or something, and we got all tangled up in that.

I would be very comfortable if this was not a substitute motion, but a different motion that basically dropped the last two sentences, because we're accomplishing that this morning. We're going to review the analysis this morning, and so those last two sentences are not needed, and then the only change I would say is, after "40 percent SPR", instead of saying "is merited" say "may be merited", and then we can go from there after we look at the projections and have some more discussion, but we got wrapped up around the axle on this before we even looked at the information, and we don't have --

My concern is we don't have the administrative record for this jump, and I would argue that scamp is not like gag, and the reason I think gag has been the delicate species is because it aggregates, and its aggregations are well known, much like in the Caribbean, where you have hinds and Nassau grouper aggregations that are known.

I have never heard of a scamp aggregation that is targeted by the fishermen, and so, to me, that's the most important life history difference between the two. They're all groupers, and they all are going to have less males than females, because of their life history, and this 40 percent motion came about very quickly after a question from the council representative that said why aren't you all considering, or something like that, 40 percent SPR. It's like a lightbulb went off, and somebody goes, oh yeah, we should do that, and let's do it, and it's just -- It makes me nervous. Thank you.

CHAIRMAN NANCE: Will and then Luiz.

DR. PATTERSON: So Doug makes an important point about the genesis of this conversation was Jim Tolan suggesting that the substitute motion be withdrawn and we just vote on the first one, and so I don't think Luiz actually accepted that, that he's not planning to withdraw the substitute motion, and is that correct?

CHAIRMAN NANCE: No, he is. We just haven't got there yet. We've had so much discussion, but the whole deal is, yes, Luiz is planning to withdraw this.

DR. PATTERSON: Then perhaps we could do that.

CHAIRMAN NANCE: I'm trying.

DR. BARBIERI: Yes, absolutely, but one thing -- Just one other thing that I wanted to say, Doug, relative to us voting on these motions, before or after seeing the results of the projections, I think it's very important for us, if this is a conceptual, right, thing, an idea, that, using its professional judgement, the committee is proposing for changing reference points, irrelevant of the results, right, and so I don't want to make choices after I see results that produce higher or lower catches.

I mean, we are simply making a recommendation on what we believe that, theoretically, would represent the best reference points, and. **With that, Mr. Chairman, I will withdraw my substitute motion.**

CHAIRMAN NANCE: Thank you. I am going to read the motion, and I think Dr. Powers made the motion, if I'm not mistaken, and I will read that, the motion that's on the table now. **The SSC moves to accept SEDAR 68 Gulf of Mexico scamp operational assessment as consistent with best scientific information. Under the current FMSY proxy of F 30 percent SPR, the model-derived estimates indicate the stock is not overfished or experiencing overfishing. Do we have any opposition to that motion?** David.

DR. CHAGARIS: So Katie hasn't shown us the table yet, but the status determination criteria is the same under F 40 percent SPR, and I don't know if we want to insert that, and so it would say, "under the current FMSY proxy of F 30 percent SPR and an alternative proxy of 40 percent SPR, it's neither overfished nor overfishing", and I'm just wondering if that would help set the stage for subsequent motions, and I'm fine either way. We can leave it out, but I'm just throwing that out there. I just looked at the table, and sorry to steal your thunder.

CHAIRMAN NANCE: Okay. It is, and it would be cleaner, but -- **Do we have any opposition to this motion? Hearing none, the motion carries without opposition.** Katie, can you please give your presentation? Hopefully no one has seen it yet, but anyway. No, I'm just kidding, and so go ahead and give the presentation, and then we can have a motion, hopefully, how to move forward with these results.

DR. BARBIERI: I still think -- Maybe I am being too, you know, into details here, but I feel that it's important, if we're going to make a recommendation on changing reference points, that we should make that recommendation before we see the results of those projections. I think it would be cleaner that way.

CHAIRMAN NANCE: Okay.

MR. RINDONE: I think it's important to note that, with the new way that the projections are being done, looping back into the terminal year, the projection settings can have an effect on the terminal year assessment of the stock's condition, based on the status determination criteria.

In this particular instance, scamp was, is, healthy enough, such that that's not a factor, but, in general practice, that might not always be the case, and so that was why, in the last couple of meetings, when you guys have had to make these determinations, you've been encouraged to look at the projections as parameterized, per your instructions, prior to making the statement about stock status and whether or not a stock was overfished or undergoing

overfishing, because the projections matter for that terminal year estimate, because it's what provides contrast on the backside of it.

CHAIRMAN NANCE: Okay, Katie, please.

DR. SIEGFRIED: Sure. Jessica, can you go to Slide 86? Thanks. I don't know if this was the right approach, but I appended the original presentation with corrections and then the additional slides needed. If you all prefer, you can just cleave off those last ones and put them separate, because it's kind of a big presentation.

I corrected the OY definition here and then provided -- So Nathan Vaughan is working with us at the Center, and he definitely helped. He ran these and helped me prepare some of this work for you overnight, and so thank you, Nathan, if he's listening.

On the top, we have the 30 percent proxy, and, on the bottom, we have the 40 percent proxy. I added the OY column at the end, and that's just the 90 percent, as characterized in the previous slide, and this is the same as you saw yesterday on the top, and that's the 30 percent, and I put it on the same slide as the 40, so you could take a look at the difference in catches, and then I have a MSRA table, so you can see status, but, first you will -- I mean, institution tells us that 40 is going to be a little lower, and that's what we get, and the OY is 10 percent lower, and that's what we get, and it shows the F value at F 40 percent, the resulting SSB as the catch progresses, and you can see the SSB is larger in the last year shown here than it is -- For 40 than it is for 30, which is also intuitively what you would expect.

I also expanded the OFL and OY, because it's in million pounds, just so you could get the exact numbers, if you do happen to make motions, and I don't know if that will happen today, and then --

CHAIRMAN NANCE: Harry, please.

MR. BLANCHET: Thank you, Mr. Chairman, and so why are the recruitments different? I thought we were using ten-year average recruitments, but, also, not just year-to-year, but also between the two scenarios, and the recruitments differ beginning the first year, and it's a lot more obvious as you go further down the line.

CHAIRMAN NANCE: Katie.

DR. SIEGFRIED: We didn't use the ten-year averages for these, and this is still the -- We used the benchmark, or we used the stock-

recruitment curve for the benchmark, but this is what happens to recruitment as the yields are captured. We don't assume recruitment in these projections. That's the version that we're going to need more time to do, because we -- In SS, in the package that we have in R, we couldn't do that on the fly with those terminal year recruitments fixed.

MR. BLANCHET: Okay. Thank you.

DR. SIEGFRIED: Sure.

CHAIRMAN NANCE: Go ahead, Katie.

DR. SIEGFRIED: You will see the general trend of the status, and so SSB over SSB SPR 30 is above one throughout the time period, and far above MSST. For 40, it's slightly below in the projection period, but the MSRA table shows it's not below SSB SPR 40 in 2020, or for the current, the current over the benchmark, and I will show that in a second, but the MSST is above in the projection period, and so it's close to dropping below the proxy, but it's not close to dropping below MSST.

This was the run that we did based on Doug's question, which is -- - This always a good question when MSY is possible, if you have a steepness in the model, and we discussed this a little bit yesterday, where the steepness is fixed, and it's not estimated, and there, historically, has not been a lot of support in using MSY when steepness if fixed, but the run that Nathan did here shows that the equivalent is an SPR of 37.8 percent if MSY is calculated and used for OFL, or is OFL, and so that's just there for your reference, to show you what F is as well.

I know this wasn't asked for, but it's something that I think will inform your F 40 percent discussion, because it shows you what the equivalent is to SPR there, and then I plotted the different results that we showed you here, and this is all in millions of pounds gutted weight by year, and the MSY is the brighter light blue line right down the middle there, and the lines that are coming down are the SPR 30 OFL in dark blue, and the orange is the SPR 30 percent OY, and then the other, which are much closer to the benchmarks, are the gray and the yellow, and those are the SPR 40 percent.

Here is the MSRA table for F SPR 40 percent, and the only changes are in green, and that just shows the current fishing mortality over the MFMT is still showing not undergoing overfishing, and then the MSST and the MSY proxy -- Sorry that I didn't highlight the 1.057 in green, but it should have been, and so that is the

terminal year stock status, using F 40 percent SPR as the benchmark, and so Dave stole my thunder, but those are the answers. One of my few pleasures in business life is to have my institution be correct and then be able to tell everybody on a mic.

CHAIRMAN NANCE: Will, please.

DR. PATTERSON: Thanks, Mr. Chair. First, it's remarkable how right Katie was. It's pretty phenomenal. Secondly though, you know, we've had this discussion about life history, and the steepness was fixed at the value it was based on values of similar fished in the South Atlantic and then Jim Thorson's analysis in FishLife, and so, when steepness has been estimated for other species with similar life histories, the steepness was around 0.69, the mean among those, and it produces an SPR equivalent of about 0.38, which is very similar to F 40 percent SPR, and so, as far as the discussion about whether we're taking a flier on this or not, it all is actually very consistent with other animals with similar life history.

CHAIRMAN NANCE: Thank you.

DR. SIEGFRIED: That's what we were hoping, to provide some context for the discussion, and we didn't know what it was going to be, and it ended up being a pretty cool number there. I think that's all I've got.

CHAIRMAN NANCE: Okay. Perfect. Let's go ahead and move back to that motion. Luiz.

DR. BARBIERI: While we do this, and I think other folks had brought this up already, but, Katie, thank you, and Nathan, and the council staff, who really did this overnight, and not just did it, but did it so thoroughly, right, to bring all the results in front of us, and it's really appreciated. It's super helpful, and it's really much appreciated, really.

CHAIRMAN NANCE: Okay. Thank you. Katie, I will second that, and, just for everyone's information, the projections that we've asked for, using that ten-year average, we're not going to be able to see today, and we'll see those at a different meeting, and it's going to take some coding changes and things like that. I think, as soon as we start changing code, it's better not to do that at midnight and hope for the best, but it's to be able to look at that and make sure that the numbers that come are good. Doug, please.

MR. GREGORY: Thank you. I would like to have a discussion, in

the future, about MSY and MSY proxies. You know, when we started this, thirty-some years ago, we weren't able to calculate MSY. We didn't have the data, and we didn't have the model development that we've got now, and SPR was our substitute for yield per recruit, and it's as simple as that.

It was conceptually brilliant, I guess, because it got the public thinking about spawning stock, instead of just yields, and spawning stocks weren't important to resiliency and permanency of a population, and we couldn't estimate MSY, but now, if we can, maybe we should, and not to argue with Will, and I do that enough, or he argues with me, but, if we can't accept those steepnesses for MSY, then we can't use it as justification for it being a 38 percent, and that's equal to 40 percent, and, therefore, everything is high.

I would like to have a discussion about that, and, to me, it doesn't matter if steepness is fixed, and, now, I'm not an expert in stock assessment, and I've heard what Katie said about, historically, it's not used, and, okay, I accept that, but, you know, you can put priors on it. If we can get steepness, either by fixing it or estimating it, and then that allows us to use MSY, I think that's a more stable way to go than these percentages of something that might, or might not, be related to MSY, depending on the species and depending on, you know, when it's done.

If we can, in a future meeting, if the Center is willing to do this, or at least in future assessments, consider whether MSY is a valid alternative to our proxies, and I would be more comfortable using a direct estimate than a percent of something else that might be related to it, and so I'm glad -- Katie, thank you, again, and Nathan, for doing these analyses and showing me what MSY is, in this instance, even though it was fixed upfront.

I agree with Will that the source of that recommendation, of steepness, seems valid to me, and the research track people decided to take an average of what is in LifeBase and what was actually estimated for the South Atlantic Council, and, to me, that seems a reasonable approach, and so, going forward, I would like to continue to explore this and see if we can, you know, get away from estimations of estimations of parameters. Thank you.

CHAIRMAN NANCE: Thank you, Doug. Will.

DR. PATTERSON: I totally agree with you, Doug, that this is something that should definitely be explored, and I think, you know, in different discussions, various members of the SSC have echoed your statement about MSY should be directly estimated, when it's estimable. In this case, it wasn't, and the resulting SPR of

38.7 percent results from the steepness that was fixed in the assessment.

The South Atlantic takes a different approach when they have issues with steepness, in that they use a prior, and then they allow the model, and the data, to inform where, within that prior, the posterior ends up being, and that's something that we haven't really explored in Gulf assessments.

For those around the table that do management strategy evaluation, or do stock assessment simulation, this seems like a really prime area of research, to actually examine what the implications are of these different approaches, and, you know, when you use the -- When you are estimating a stock-recruit function, that changes lots of, you know, issues with estimating the recruitment deviations, which are going to drive the projections, and we often have issues with having to fix, or take an average, or do all kinds of things, in the projections, and so it has more implications than just this idea of what the -- You know, where SPR is relative to being estimated or setting a proxy.

CHAIRMAN NANCE: Katie and then Doug.

DR. SIEGFRIED: I just wanted to add to that conversation, and, I mean, even within the Center, we have debates amongst the assessment analysts of what to do with proxies for MSY and how estimable things are. Like, for amberjack, it was estimable, but we still used a proxy, and I know Doug is very familiar with that, and it's something that, even nationwide, we have this conversation about -- You know, with experts in the field.

I think Clay would disagree, and other people in the Center too, and, I mean, it's definitely something that needs to be discussed more, and I think, when you can estimate it, it's pretty clear that MSY is usable, but, you know, there was some disagreement about that with amberjack.

There is also how -- This is a little fuzzy, but how estimable it may be, whether it's flat, and so, for some assessments I've done in the Atlantic, it was flat for, you know, ten units, and we took a midpoint and then used MSY, and so it depends on the comfort level of the participants and the SSC in believing that estimate and then deciding on the proxies, and there is also a lot of discussion about how much influence the council has on what the proxy should be, and so it depends, and I think we could have a whole session about whether to use MSY and then what level of proxy is appropriate and review all the literature on that, but you all's schedule is quite full, and so I don't know when that would

actually occur. Maybe we should do it at one of our national stock assessment workshops.

CHAIRMAN NANCE: Thank you, Katie. Doug.

MR. GREGORY: I would just like to point out and refer people to some of the earlier papers on steepness, some coming from scientists in the Gulf, and I forget the names right now, but they recommended, I think for grouper-like species, steepnesses of 0.8, or 0.7, maybe, or 0.8, and gonochoristic higher, and, in this assessment, it was fixed at 0.69, which, to me, seems to be a very conservative starting point.

That kind of made the assessment conservative in the beginning, in my mind, compared to the literature that I've read, and I'm not making a big deal out of it, but I'm just pointing that out, that that's my impression of what happened. Thank you.

CHAIRMAN NANCE: Thank you, Doug. We're going to take a ten-minute break and then reconvene, and I have some ideas of how to move forward, and I will present those when we get back from break, and so, maybe at 10:40, we can reconvene. Thank you.

(Whereupon, a brief recess was taken.)

CHAIRMAN NANCE: Okay, and so we're reconvening. I appreciate everyone just taking a ten-minute break. Anyway, right now, we have that one motion with the F 30 percent SPR that we have voted on, and we have a withdrawn substitute motion.

However, it captures, I think, where we want to go, and maybe -- Let me just propose something, but we need to have some motion makers, but that substitute motion, if you look at it, has two different items. The first one that I would like to have a motion, just to move us forward, is going to be almost the same motion as we have for the 30 percent, but it will just use the SSC moves to accept the SEDAR -- With the F 40 percent SPR, and the model-derived and so forth, not overfished and overfishing, and that would be a motion.

The second motion would be more if we want to go to the F 40 percent SPR and see projections from that, and then that would be a separate motion, and I think that would be clean on what we're trying to accomplish, from what I'm hearing in the discussions. Luiz, please.

DR. BARBIERI: Thank you, Mr. Chairman. Well, a couple of things. I think Dr. Crabtree would be ready to make the motions that need

to be made for us to move forward, as far as those issues that you brought up, but I'm thinking, in terms of projections, if you want to be smart for us -- Because we haven't really discussed how we're going to handle uncertainty in going from OFL to ABC, and so whether we're going to apply our ABC Control Rule or how we're going to discuss those things, because then we could instruct, I'm thinking, the Center to come with the projections using the whatever criteria we determine here.

CHAIRMAN NANCE: Ryan, you bet.

MR. RINDONE: Heads-up, Tom. I think that there might be a step that needs to happen in between there, because, right now, scamp is managed as part of the other shallow-water grouper, and so, if separate catch limit is prescribed for scamp and yellowmouth, then that changes the whole dynamic of how that stock is going to be managed, and it could necessitate a discussion by the council about allocations, about what to do about the IFQ program, and like there's a lot of things that would have to happen.

If it's going to be included within shallow-water grouper, then, really, the projections that you guys get would need to include values for all of that and not just -- You know, we can't just update scamp and yellowmouth under FES and then plug it in with black grouper and yellowfin grouper under their old currencies, and you guys should probably review any conversion of those up to FES or any conversion of this down to CHTS.

I think that there's probably some intent from the council that you guys should receive first, before making any recommendations, because, otherwise, you're going to have to make about eleven recommendations, depending on like how all of this could possibly shake out, and it probably would just be easier to hear from the council about what their intent might be.

CHAIRMAN NANCE: Roy.

DR. CRABTREE: Does this fishery have a -- I guess it does have a commercial/rec allocation.

MR. RINDONE: Well, it has a de facto one for the IFQ program to exist, but not for this specific stock. It's for shallow-water grouper all together, and that was based off the ACL/AM Amendment, and so, for scamp, it used -- Well, for all the shallow-water groupers, it used data from 1999 through 2008, and so the average landings from 1999 to 2008.

If we were to revisit that -- When we have looked at that in the

past for other species, we found there to be considerable differences in the numbers that were used then versus what those numbers for those same years are now from S&T.

DR. CRABTREE: Okay. The other species, black grouper and I forget what else --

MR. RINDONE: Yellowfin grouper.

DR. CRABTREE: All right, and they're not assessed species, correct? We're not working off an assessment for black, because didn't it get -- All right, and so they're just based on average landings over some period?

MR. RINDONE: So black grouper is based on SEDAR 19, and so it reverts back to the last completed assessment.

DR. CRABTREE: So we rejected a new assessment and reverted back to a much older assessment that had all the same problems and shortcomings?

MR. RINDONE: We didn't do the --

DR. CRABTREE: Do I understand that correct, Dr. Barbieri?

MR. RINDONE: We didn't do the new assessment.

DR. BARBIERI: We haven't, but, just to your point, Dr. Crabtree, it's that the plan now, within the SEDAR Steering Committee general plan for black grouper, is to proceed with a data-limited methodology.

DR. CRABTREE: I support that, and that's fine, and I was just trying to get at could this all be remedied, if they wanted to, and just take this new ABC and dump it into the shallow-water -- Could you just do a calibration and apply it to some of it, but, if you're working off an assessment, it's a little more complicated than that, but I guess that's for the council to work out what they want to do, and then we can adjust to it.

CHAIRMAN NANCE: So what would be the best way to move forward?

MR. RINDONE: I think it would be to -- You guys have accepted the assessment, at this point, and you've stated that, under 30 percent SPR, it's not overfished or undergoing overfishing, and Katie has shown you what it looks like if you use F 40 percent SPR, and it's still healthy, and it's not overfished or undergoing overfishing, and I think that, at that point, you -- Like, when we do the

presentation, you will lay it all out there for the council, and like, at this point, you guys need to make some decisions, and we can't offer you projections unless we know what your intention is for the stock, because either the projections need to be offered, considerate of the other shallow-water groupers as well, because that stock is managed as a single complex, with four members, or, now that you have more explicit data for scamp and yellowmouth, do you want to break those two out as their own unit, their own complex, and then consider black and yellowfin separately, because, like I said, it's going to have implications for a lot of ways in which the fishery is managed.

CHAIRMAN NANCE: I think the best way to move forward is to have another motion with the 40 percent SPR and then just have -- We don't need a motion, but have a discussion, and just Sean can present a discussion of where we need to go, so the council can make some decisions, as far as taking it out of whatever.

DR. FRAZER: I just think -- In my opinion, right I just think that this body should just decide what they want to do with scamp, and that's it, right, and, I mean, those other decisions will take a while to iron out.

CHAIRMAN NANCE: Okay, Roy.

DR. CRABTREE: I will make a motion, and, Jessica, I want the same motion up at the top of the screen there, and now go to where it says "30" and change that to "40", and I believe that's my motion.

CHAIRMAN NANCE: Okay. We have a motion by Dr. Crabtree. Do we have a second for that motion?

DR. BARBIERI: Second for discussion, but --

DR. TOLAN: Second.

CHAIRMAN NANCE: Okay. Is there discussion? Will.

DR. PATTERSON: I think we're going to have to change some language here, because it says under the current proxy.

DR. CRABTREE: Okay.

CHAIRMAN NANCE: Will, thanks. That absolutely is right.

DR. BARBIERI: I was thinking that we could pull some of that language that Dr. Patterson crafted.

DR. CRABTREE: Yes, and can we use the language here of "However, the SSC thinks that an FMSY proxy of 40 percent is merited, based on life history", and then we could say, "under an FMSY proxy of 40 percent". Does that work?

DR. BARBIERI: But this is why I don't think that we are ready.

DR. CRABTREE: I withdraw my motion.

DR. BARBIERI: No, don't just --

DR. CRABTREE: I don't withdraw my motion.

DR. BARBIERI: No, Roy, and my point is I don't think we are ready to accept an assessment under a different proxy. We are making a recommendation, just like what we did for gag, and we accepted the previous assessment, and we are making a recommendation to the council.

DR. CRABTREE: All right. Should we just put that the SSC thinks that an FMSY proxy of 40 percent should be considered by the council, and it may be more appropriate for scamp? **It may be more appropriate for scamp, based on the species life history.** All right. Then go down here, where it says --

CHAIRMAN NANCE: Does that first sentence make sense? Yes, I think it does. Okay. Go ahead.

DR. CRABTREE: All right. **Then where it says, "under the current FMSY proxy", let's change that to say, "under and FMSY proxy of 40 percent SPR".** How is that?

CHAIRMAN NANCE: That looks good. Jim, any issues with that?

DR. TOLAN: No, I'm fine with that, Mr. Chair.

CHAIRMAN NANCE: Thank you. Will.

DR. PATTERSON: The only thing I see is I think we should reverse the order of the FMSY proxy of F 40 percent SPR is more appropriate for scamp, based on the species life history, and, thus, should be considered by the council for management.

DR. CRABTREE: That's fine with me.

DR. PATTERSON: So thinks that an FMSY proxy of F 40 percent SPR is more appropriate for scamp, based on its life history. Thus, should be considered by the council for management.

CHAIRMAN NANCE: Perfect. Jim?

DR. TOLAN: I'm fine with that.

CHAIRMAN NANCE: Thank you. Any further discussion on this motion?

SSC MEMBER: Does that last sentence need to have "F 40 percent SPR", "an FMSY proxy of F 40 percent"?

DR. GRIFFITH: That last sentence has "and" instead of "an".

CHAIRMAN NANCE: We've got some good remote reviewers. Thank you. Let me go ahead and read the motion. **The SSC moves to accept the SEDAR 68 Gulf of Mexico scamp operational assessment as consistent with the best scientific information. However, the SSC thinks that an FMSY proxy of 40 percent SPR is more appropriate for scamp, based on its life history, and, thus, should be considered by the council for management. Under an FMSY proxy of 40 percent SPR, the model-derived estimates indicate the stock is not overfished or experiencing overfishing.** Will, please.

DR. PATTERSON: We actually already accepted it in the previous motion, and so maybe we say here "accepted", instead of "moves to accept", because we've actually already done that.

CHAIRMAN NANCE: Okay. Perfect. Ryan.

MR. RINDONE: It's probably a good idea to not forget about poor old yellowmouth grouper too, since it's included in this and so "for scamp and yellowmouth grouper", and scamp is the headliner, but --

CHAIRMAN NANCE: Does the other motion have to be --

MR. RINDONE: If we're just being precise about it. I mean, I think it's inferred, because we've talked about it.

CHAIRMAN NANCE: Okay.

MR. RINDONE: I don't think you need to go back to the other motions. I think it's inferred, and the document that all this refers to includes yellowmouth as well.

CHAIRMAN NANCE: Will.

DR. PATTERSON: I think we either need to put it in both motions, and also, in the second sentence here, just put "for scamp and

yellowmouth grouper", or just leave it out of the first sentence and have it be scamp.

CHAIRMAN NANCE: I think, without going back to that first motion, let's just put it in there, since it was implied. Does anybody have heartburn with doing that? It doesn't change that motion, but it just, I think, is a little crisper. Okay. Harry.

MR. BLANCHET: I have a little heartburn about it, because we haven't seen any presentation. It was in the materials, but it has not been discussed as part of this meeting, and so I don't know if we should be including yellowmouth, unless we have actually discussed it.

MR. RINDONE: You have, and it's been included in all the values that you've seen. The two species were treated the same, because they are morphologically extremely similar, and so all landings of scamp and yellowmouth were essentially combined, because it's too difficult to differentiate between them.

MR. BLANCHET: Okay. I missed that piece.

CHAIRMAN NANCE: Roy.

DR. CRABTREE: SEDAR 68 includes yellowmouth grouper and scamp.

CHAIRMAN NANCE: Yes.

DR. CRABTREE: We went through that, and so, when you say SEDAR 68, that means you're talking both species, and I'm fine with adding the wording in, but I don't think it's particularly necessary, and I will not accept any more edits to my motion.

CHAIRMAN NANCE: Thank you. I read the motion. **Is there any opposition to this motion?**

MR. GREGORY: Yes. Doug Gregory opposes the motion.

CHAIRMAN NANCE: Okay. **The motion carries with one in opposition.** Okay. Are we done with scamp and yellowmouth? Okay. I do want to say, Katie, again, that I greatly appreciate -- I know the hard work that that is, and Nathan too, for being able to do that. Will.

DR. PATTERSON: So Ryan talked about this dilemma about shallow-water grouper, and now we have scamp and yellowmouth projections that will come out of the analysis that we've requested from Katie and her team, and so the mechanics of all that -- Like, the next

time we see this, all that will be sorted, and we'll have a clear direction?

MR. RINDONE: Your glass-half-full approach is admirable. I think what would be useful is -- I mean, obviously is Tom is witness to all this, but, if you guys were so inclined, you could recommend that the council consider -- You know, offer a motion to recommend the council consider explicitly some of these things, or you all could just, you know, stink-eye Tom and expect him to carry all of that forward and initiate those discussions, as the council's Reef Fish Chair.

Granted, he will probably just stare over at me and expect me to prod some of that along too, which I'm happy to do. I mean, I think there's -- Like I said, there's a lot of management decisions that are going to have to happen before we get to a point where you guys are calculating the ABC, or recommending ABC.

CHAIRMAN NANCE: Yes. I mean, we certainly can make a motion to make our intent known, or we can -- When Dr. Powers gives the presentation, he can discuss that. Will.

DR. PATTERSON: Well, I think we should just capture, in the report, that Ryan has just volunteered to spearhead this and work with the council to straighten up any uncertainties that we'll encounter.

MR. RINDONE: I think you were muted.

CHAIRMAN NANCE: I will tell you this, that -- I don't know if you've ever listened to the council meetings, but Ryan -- I mean, he does a great job of presenting the things, and with the council chair, I mean with the SSC individual that's presenting, and Ryan does an excellent job in presenting what we have talked about, in a very succinct manner, and so I always appreciate having Ryan there, because he does -- He really is a great help.

If that is how we want to do it, I think that would certainly work, and we don't have to have a motion, but Ryan and Sean would be able to convey that message to the council, so that they can know how we hope to proceed, and then they can give us direction on how to proceed. Luiz.

DR. BARBIERI: Thank you, Mr. Chairman, and I don't disagree with that one bit. I am just trying to go back to, you know, the practical side of whether we're going to evaluate the uncertainty assessment of this assessment now, that we have everything fresh and we have folks in the room that can talk about this assessment

directly, or -- I mean, because, eventually, one way or the other, we're going to have to make a decision whether we're going to apply the ABC Control Rule or whether we're going to choose some other method to decrement from OFL to ABC.

CHAIRMAN NANCE: Ryan, yes, please.

MR. RINDONE: So what I'm thinking about that -- You know, if you were just going to look at scamp and yellowmouth by themselves, your musings about what uncertainty might be might be X, but, if you're going to also lump in yellowfin, about which you know squat, and then black grouper, which we've already talked some about what happened with the last assessment, and now we're stepping back to a more data-limited approach for that, your musings about what uncertainty might actually be are undoubtedly going to be different than X, and so I don't know that you have the information in front of you to do anything except talk about scamp and yellowmouth, which I don't think that you're in a position to do right now, until you know what the council intends to do, as far as how to manage it.

There are obvious arguments for leaving it in the shallow-water grouper complex and arguments that can be made to take it out of there, but how it's actually going to be managed like that is really more of a council issue, because there is -- Biologically, I think you could argue either way, but, until you know what to do as far as that, what you consider, as far as the determining what the global uncertainty is going to be for that complex, for those two species pairings, is going to differ.

DR. BARBIERI: Right. Good point. Thank you.

CHAIRMAN NANCE: Then I think we could spend just a half-hour, and I'm not sure we would ever be able to do that, but just on how we want to see the projections. I think, once we see what the intent is, we can then spend just a few minutes on asking the Southeast Fisheries Science Center -- Asking for the projections and how we want to do that.

DR. BARBIERI: Yes.

CHAIRMAN NANCE: Okay. Katie, please.

DR. SIEGFRIED: So it sounds to me like my team and I don't have marching orders exactly right now, but I do think and please correct me if I'm wrong, because we do want to work on the ability to use average recruitment for this stock assessment, and so we can still work on that, but we just don't necessarily know what

the other settings would be, but if I can just make sure.

We've used the stock-recruit relationship for the benchmark still, and there's not been any debate about that, but it would just be using the last ten years of estimated recruitment to inform the forward projections, and is that correct?

CHAIRMAN NANCE: Yes.

DR. SIEGFRIED: We would create the code for that and have it ready for whatever ABC determination that you made and whatever additional uncertainty Ryan is talking about, if you pull it out of -- Or leave it in the complex.

CHAIRMAN NANCE: I think yes. That's what we have discussed, and so the recruitment to be used for the projections would be the average of the last ten years, and it wouldn't include those little four years that were projected by the model. It does not include those. We had that in that motion, and can you find that one that -- Unless you deleted it, Jess. Can you go up to the one -- Right there.

That last part, "should be informed by the mean model-derived recruitment from the last estimated ten years, 2008 to 2017", and those are the marching orders for the Center, and so, Katie, that's what you can take and be able to start your analysis with.

DR. SIEGFRIED: Is it okay if Jessica sends that to me, even though the motion was withdrawn, just so I have that, or is that going to be in the report? Here, and I will take a picture with my phone. Hold on. Okay, and so then I just wanted to make the SSC aware, based on the way that SS works, we may have to do something like estimate those terminal years of recruitment, and it might be a little bit of something we have to present to the SSC later. Okay.

CHAIRMAN NANCE: Jessica, would you just maybe copy that substitute motion and send it to Katie, just so she has a written record of what we're -- Just that last part, Katie, is what we're interested in, but just so that we're all consistent in what we're -- When we say the last ten years, we all understand it's 2008 to 2017. Okay. Perfect. Let's go ahead, and we're off scamp.

Okay. Let me see here. We're going to do -- Since Ryan has already read the scope of work for Number XII, that's the one we're going to go to, and so we're going to review, right now, Item Number XII, Review of the Scope of Work for the 2024 Operational Assessment for Gag Grouper. This is the one we started with this morning, before I caught where we were heading.

REVIEW OF SCOPE OF WORK FOR 2024 OPERATIONAL ASSESSMENT OF GAG GROUPER

MR. RINDONE: All right, and so the operational assessment scope of work for scamp, we're looking to have data updated through 2023, using the alternative SEDAR 72 base model run, which substituted the State of Florida State Reef Fish Survey for the private angling and for-hire landings and discards with data updated through 2023.

We've got a couple of extra things here under Term of Reference Number 2, and so the standard one of describing any annual differences in the magnitude of landings from the previous assessment greater than 10 percent, with the assistance of NOAA S&T, because there is an approved calibration for gag that FWC had worked on with S&T, and so just basically to make sure that, as landings go through QA/QC procedures, that something weird doesn't happen, and, if it did, what was it and why.

Update any life history data, such as growth, reproduction, and mortality, if warranted. Gag is the subject of quite a bit of research off the West Florida Shelf right now, and so it's not impossible that some more interesting information might come up out of that, especially as it relates to sex ratio and distribution of males. What else is Sue working on, Luiz?

Then evaluate available data on the severity, in terms of intensity and extent, of the 2021 red tide episodic mortality event and determine if the previous estimate used in the projections from the last assessment, that medium severity moniker, should be updated, and we're looking at you, Dr. Chagaris, on that, and so head nods there, for the people online. Moving on down, I updated the OY definition here to reflect the discussion about lane snapper, and so now that says OY equals 75 percent of the yield at MSY, or proxy.

CHAIRMAN NANCE: So you're saying you changed that in yours?

MR. RINDONE: I changed that in mine, yes, and an F 40 percent SPR is noted as the FMSY proxy, in that top bullet there, per the projections that you guys have offered to the council and that they have directed staff to run with for building Amendment 56, and so, for consideration here, if you scroll all the way down to the bottom, Jess, for topical working group, I put a topical working group is recommended for this assessment, to discuss red tide mortality, but that it could be virtual. Dave, do you think that it needs any more than that, or do you think that that's suitable for that discussion? I am looking at you, since it's

your product.

DR. CHAGARIS: Yes, and, I mean, we can update the model through 2021, and I think that there is -- One thing to think about is, the way it was handled in the previous assessment, we provided a time series of historical estimates, back to 2002, and Lisa included them as sensitivity runs, and one of the runs was pretty promising, but there was one issue with it that I think can be resolved, just how the mortality was applied beyond the plus groups, the plus-group ages in our model, and so I'm wondering if this assessment can accommodate, you know, looking at that run again and trying to resolve that one issue, and that is maybe something we can discuss with this working group, not just the estimated mortality out of the ecosystem model, but also how it's used in the stock assessment.

CHAIRMAN NANCE: It was applied over all ages, correct, consistently?

DR. CHAGARIS: The model, as we had it set up before -- We don't model -- In the ecosystem model, we don't go all the way out to the maximum age, and we have an age-five-plus group, and so she applied the mortality up to age-five in the assessment model, whereas it should have been applied, I think, up to the oldest ages as well, and it created this weird spike, and so I think that's something I would -- I think it would be good to look at again, because, in that run, it did fit some of the indices much better, especially the recruitment indices, and so there's some promise there to explore that further.

CHAIRMAN NANCE: Katie, please.

DR. SIEGFRIED: We agree that that would be a perfect use of a topical working group. Lisa just had so much to do with that specific model at the time, and, I mean, I think she would be able to get a lot further along with a topical working group. When we saw the red tide proposed working group -- We do think that we want to spend some time on that.

Some of the topical working groups are quite short, just meeting once or twice, which doesn't seem like enough time, especially if there's issues with offline meetings, which we'll be discussing at the Steering Committee, but we would like to dedicate some time to this particular topic.

CHAIRMAN NANCE: Okay. Let me ask you this, and would it be better to have non-virtual or virtual?

DR. SIEGFRIED: You know, I think, because it would be similar to like an assessment workshop -- I mean, it would have to either be a large one, for multiple species, in-person, or it should be a few to several virtual for this one species. I think we could get a lot done, and I don't know how many people would want to listen in or who would be able to contribute, outside of like Dave and the lead analyst, really, and so I don't know how big it would need to be and whether it would need to be in-person, but we just want to dedicate enough time to be able to do several model runs and configurations.

CHAIRMAN NANCE: So it sounds like virtual would be very good, but making sure you had enough time, enough meetings, to be able to accomplish it, and I think that's appropriate, for sure.

MR. RINDONE: Okay, and so I will go ahead and I will retain that a topical working group is recommended for this assessment to discuss red tide mortality and that it can be virtual.

DR. SIEGFRIED: I have a question about Number 2, the first bullet, and this was on for lane snapper, but you all didn't want an operational, and so I didn't discuss it then. Looking at this from my group's perspective, we would need more help from the data providers to describe those annual differences, and the feedback I've gotten, from our Fisheries Statistics Division, is that, you know, it's difficult to spend time on forensic data analysis, and so, if I could hear a little bit about why this was requested, specifically like 10 percent being the magic number, as opposed to just showing previous inputs, versus current inputs, and that's what my group tends to do, and so if you could provide a little bit of background about why that's requested.

MR. RINDONE: For this, generally, like the way that this is envisioned, is comparing the landings that are provided for this particular assessment, and let's call it SEDAR 90, and let's just make up a number, compared to SEDAR 72 and looking at any differences in the annual estimates of fleet-specific landings, to see if there are any large-scale differences, and, if there are, trying to figure out why they happen, because, occasionally, we do see those, and, too often, we don't get much of an explanation from S&T as to why they are, and we're just told that it's part of the QA/QC process, and these landings are intermittently examined for different errors and things, and, oftentimes, the differences are miniscule, but sometimes they're not, and we will invariably have folks that will ask us why things might be different, and it would certainly be helpful to have something better than a shrug to offer.

DR. SIEGFRIED: Yes, I agree, because, you know, my team gets the same shrug, and so we would just have to get it -- It's not just S&T though, and we do have folks in the Science Center that would have to address some of the differences, and you're not just talking about MRIP data specifically, because we're using SRFS for most of our recreational, and so I assume that you mean everything, and so I don't know if you want to just say with the assistance of appropriate groups, or however you want to state it, but it's definitely internal to the Center as well.

I have one more question about the second bullet, and so we have been getting some confusion. We have been hearing that there is some confusion about things like "if warranted", and I know why that's put there, but is this meant to be like a data triage request, or is it just if there are studies, like, you know, Sue has done a repro study, and, obviously, insert all of the new ages and see if there's a difference in growth, and then recalculate Lorenzen M, and that's what I am getting from that, and is that what you're talking about, or is there --

MR. RINDONE: If there is contemporary research that is in keeping with the kind of data that have been considered in the past to consider for this assessment, then, you know, let it be presented for the assessment team, and, if it come to pass that we need to have another topical working group, and we'll have a good idea of what Sue is working on before this thing kicks off in three years, and so, by then, we should be able to plan that.

DR. SIEGFRIED: Okay. Thank you.

CHAIRMAN NANCE: Any further changes to put for this? Okay. Thank you. We'll go to Item Number XIII, Review of Scope of Work for 2024 Operational Assessment for Gulf King Mackerel.

REVIEW OF SCOPE OF WORK FOR 2024 OPERATIONAL ASSESSMENT OF GULF KING MACKEREL

MR. RINDONE: Okay. Last one, and so this operational assessment is also scheduled to occur starting in 2025, using data through 2023, and the last assessment was the SEDAR 38 update, which updated recreational landings and discards with those calibrated to MRIP's Fishing Effort Survey, and it also revised the estimate of shrimp bycatch mortality in all the data in the model updated through the 2017-2018 fishing year.

The SSC reviewed the SEDAR 38 update in 2020 and considered it BSIA, or considered it consistent with BSIA, and estimated that the stock was not overfished or experiencing overfishing. The

stock, at the time, was above the minimum stock size threshold, but below the spawning stock biomass at MSY.

The SSC had also noted depressed recruitment in the stock for about the last thirteen years, compared to the long-term average for the data-rich period from 1986 forward, and, further, and this is more recent news anyway, the 2021-2022 fishing season will mark the first time in over twenty years that the commercial sector has not landed its quota in the handline zones. The gillnet component of the Southern Zone landed its quota, but the handline zones, for the 2021-2022 fishing year, all came in well below what they normally catch and were open all year.

The SSC should also consider whether the scope of work recommended would benefit from any topical working groups to address key issues, and then we'll send it on for making the terms of reference, and so, Jess, if you want to bring up the kingfish one, and I will as well, and I will update the OY definition here, also. For this one, OY equals 85 percent of MSY or its proxy, which is currently 30 percent SPR. MSST is still one minus M for kingfish.

CHAIRMAN NANCE: Doug Gregory, please.

MR. GREGORY: Thank you, Chair, and thanks, Ryan. That was a good overview of where we are, and I was just trying to point out that maybe the quotas weren't reached because of a change in demand due to COVID during that time period, and it may not be an indication of a problem with the stock, although there are some fishermen that are in the Panhandle that are saying they're not seeing the kingfish they used to see, but they're also not seeing the baitfish, and so we don't know if they moved offshore or something with climate is affecting them.

The one thing I would like to request is, given the confusion we had in the last stock assessment over bycatch estimation, I would like to recommend a topical working group to look at the bycatch estimation process for king mackerel in the shrimp fishery.

CHAIRMAN NANCE: Doug, I think that's already going on. I think the Center is looking at the bycatch methodology in general, and specifically for different groups, but Katie can address that, but I think they're doing that right now.

MR. GREGORY: The Center is doing it, but SEDAR is not doing it. We're not doing it. We're not involved in that anymore, and it was a major influence on the change in the stock assessment between the benchmark and the update, and I really think it needs to be looked at in more detail and try to resolve some of the confusion

that we had.

DR. SIEGFRIED: To that point, Doug, yes, the Center is putting together -- We have working groups that are working on that with external partners, both stakeholders and academics, and we're hiring a contractor, a post-doctoral associate or a research associate, to actually complete that methodology, and then the plan is to get a CIE review of the methodology.

I don't disagree with your concern about bycatch, and I kind of anticipated a topical working group request for this, but, I mean, I don't think that SEDAR can review the methodology better than the CIE reviewers can, and so I would suggest that we add like a bullet, in Number 2, saying describe the changes in the methodology for bycatch for king mackerel, and I know king mackerel is definitely a key species that the methods working group is taking a look at and that the CIEs will focus on, but I just don't think that the expertise is there to review the actual statistical methodology within SEDAR. If it's something where you want to have a group get together and take a look at that -- I just don't know how much more review there would be.

MR. GREGORY: Mr. Chair, may I respond?

DR. SIEGFRIED: There could be more people in that CIE review, where that document is put out ahead of this, and I mean, obviously, it will be completed before this assessment will take place, and so it will be something the SSC will take a look at before this assessment starts.

CHAIRMAN NANCE: Doug, please, yes.

MR. RINDONE: Well, thank you, Katie. I understand, and that's good news, particularly if the CIE review is done in time for us to have a topical working group to look at it specifically for king mackerel. I doubt the CIE is going to focus on a particular species, and I was part of that bycatch working group that the Center formed, and, two year ago, I guess, we met twice, and then it was brought in-house, and the outside people weren't involved anymore, and so it is a concern, and I think, given that you're going to do a CIE review, it makes the topical working group that much easier.

The topical working group wouldn't be addressing every aspect of how SEAMAP and the surveys handle the estimation of bycatch, but this would be specific to king mackerel, because the changes between the benchmark king mackerel and the update king mackerel were dramatic, not just dramatic in terms of the years that were

used to estimate the bycatch and dramatic in the result of the estimation, and all the differences seem to be due to the way it was estimated, and so I think it's worth taking a look at, just to give us a -- If nothing more than to give us a sense of comfort that it all makes sense. Thank you. Do I need a motion on this or not?

CHAIRMAN NANCE: Just one moment, Doug. Benny.

DR. GALLAWAY: What exactly is the CIE going to review?

DR. SIEGFRIED: The statistical methods, all of the data analysis that go into -- We have to have it done for red snapper, and so it's going to be done for king mackerel. I mean, if we don't get it done -- My head is going to explode if it's not ready for the operational assessment for red snapper, and so those reviewers will delve deep into the methodology for that bycatch estimation, and there's a few components to it, as, I mean, you know very well, and they'll look at all of those different components, the CPUE, the effort data, which is also under scrutiny now, and then whether it's a rare species or a common species, and those are three things, off the top of my head, that they will review.

DR. GALLAWAY: Well, I would like to point out, or reiterate, that, of course, the level of effort is extremely important and that any method that is developed for estimating effort needs to be consistent with the historical data.

DR. SIEGFRIED: Well, the effort data are going to undergo -- They're first, basically, and everything is dependent on effort. Everything that we do for shrimp and for other species bycatch estimation depends on that effort, and so that is happening now, and it has been going to the council, and there's been lots of discussion about that already. The methodology to create a bycatch estimate is after that, and it has to be linear, and so the CIEs will have to review all of that.

They will look at the effort data, the whole time series, by depth, and they will have to look at the CPUE that's being assumed, if there's a different methodology, something about the observer data rates that they're going to come up with, and all of that has to be reviewed, and it's sort of like -- I mean, I just don't see how we could do that at a SEDAR meeting without, you know, the specific experts. It's like the Great Red Snapper Count itself couldn't have been reviewed just at one SEDAR meeting, and it needed external experts to come in.

DR. GALLAWAY: Will outsiders be invited to participate in the CIE

review? By that, I mean like Jim Nance and myself and others who have worked with estimation of effort over the past couple of decades.

DR. SIEGFRIED: So, if it's not a desk review, I don't see why it would be limited in attendance. If it's a desk review, everything that's written down will be shared with the public as well.

CHAIRMAN NANCE: Doug, I think you and I and Benny were on that first working group, and then it was -- As we got deeper into the details, it was stopped, as far as the workshop part, but then the Center, I know, has taken on that and kind of in-house is working on shrimp effort and the bycatch model itself, and so I'm not sure the best approach to -- I hear what Katie is saying about a CIE review, but I think probably, from the public standpoint, it would be good to have Benny and some experts there that could at least bring some history, and Doug, to the history of what has happened, just so that we're not, all of a sudden, starting with a brand-new something.

DR. SIEGFRIED: Absolutely, and what I can do, because it hasn't been decided whether it's desk or in-person or virtual CIE, and I will definitely communicate that there is interest to have everybody there at the table, I guess whether it's virtual or in-person, and I will communicate that to the leadership at the Center. I know that this is very important, and transparency is important.

DR. GALLAWAY: To that point, what is the schedule for the CIE review? You probably said, but I missed it.

DR. SIEGFRIED: We are just hiring that person to finish up the bycatch estimation, and the scoping for data for the operational assessment for red snapper is July of 2023, and that is what I am -- I am not in control of all of this, but that is the time when I'm thinking, oh my gosh, we have to be done with this, or I don't have the data that I need for the red snapper operational assessment, and so that's the timeline that we're operating on.

We think it would take, I mean, at least the six months that the person can work fulltime on it before that scoping, and then there will have to be the CIE review at the end, and I imagine that it will be pretty close to that July 2023 timeline, but, again, it's not set.

DR. GALLAWAY: You know, to that point, we've had over a decade of real good agreement with the bycatch estimates and effort, based mainly on the agreement with the effort estimates, and so, if there

is a major change in effort estimation that's going to occur, that is critical for incorporating the people who are going to be affected by the changes in effort that might occur, and effort is the key component.

CHAIRMAN NANCE: Doug, does that meet your concern?

MR. GREGORY: No, and, in my mind, it weakens the concern of the Center, in that a topical working group review, specifically for this assessment, should be easier to be able to provide the information, and then we just have a few SSC members reviewing it and discussing it, like we do all the topical working groups, and I don't see the problem with doing it, and so I still prefer to do it.

CHAIRMAN NANCE: I think we can put that in, the topical -- Can you scroll down to the bottom of that, Jessica, please? Do we have others recommending a topical working group on the bycatch estimates? Benny, I'm hearing yes.

DR. GALLAWAY: Yes, I would think a working group would be in order.

CHAIRMAN NANCE: Okay.

DR. GALLAWAY: Jim, to that point, I'm concerned that, when the estimation is completed, it will come to us in a chance where there's no time to really challenge the results, and this is -- I can't speak, or make it clear, how important effort estimates -- That is agreement that those are the proper estimates.

CHAIRMAN NANCE: Certainly, from a perspective of review, it's, I think, from just having an SSC review it -- I'm not sure that -- We're not going to be able to have the time to be able to look in detail at how things were done, and I'm not sure how the best way to do this is, but, Ryan, I think we're going to recommend a topical working group just for the bycatch estimates for mackerel, king mackerel.

MR. RINDONE: Okay.

MR. GREGORY: Thank you.

CHAIRMAN NANCE: You're welcome, Doug. Katie, please.

DR. SIEGFRIED: So, I mean, this is of great concern to me, not just for shrimp bycatch, but because of red -- Red snapper is like the thing that keeps pushing all of that, and so what I would like

to do, and I will work with council staff to make sure that there is -- That leadership knows that this is the expected timeline. I will work with Ryan to figure out the SSC meeting that we would need to make, and, that way, I can back-calculate when the CIE needs to happen and all of that, and then we can report back next time about how that should go.

CHAIRMAN NANCE: Perfect, because I do think it's -- While we'll put it here in king mackerel, I think it's going to be accomplished way before this, because red snapper is the big one, and I think our review, and the CIE review, and all of those things have to take place before that snapper assessment is done, and so I think, while we'll stick it in here just for record, I think it's going to be the red snapper assessment where it's going to get the critical review of the methodologies that are being used.

DR. SIEGFRIED: We do, as a Center, need to build up the confidence in that, and so I don't disagree with the request in the first place, and I was just explaining that it wasn't originally proposed, you know, or stuck in here, because we were going to have that external review, but I don't see a problem with having calls for -- Hopefully this is a virtual option.

CHAIRMAN NANCE: Yes.

DR. SIEGFRIED: To go over that methodology in more detail and demonstrate the ability of our staff to reproduce the results.

CHAIRMAN NANCE: I would think, Katie, having that option in this one, and certainly we have the option to take it out at a later date, if we wish, and we don't have to -- It's just in there as a placeholder, in case we need it, because, really, all of the species that have a shrimp bycatch issue -- It's going to be -- All of those species are going to be involved in that review type of thing.

DR. GALLAWAY: Yes, and it's important that the previous estimates were based on individual estimates for time and space cells in the model, and, if that is changed, and you're going to something that does not include that, then it's a different ballgame altogether. That's what the estimates of effort are and what the bycatch is, and I think we're -- I can't iterate how important I think it is that you work together with industry to come up with an acceptable solution for bycatch, I mean, effort estimation.

CHAIRMAN NANCE: Thank you. Any other recommendations for king mackerel? Hearing none, Ryan, I think that takes care of king mackerel. I think, unless I'm mistaken -- We have public comment.

We're going to go into the public comment section of the meeting. Do we have any individuals that would like to participate in public comment? Please raise your hand. Bob Zales, please. Thank you for being here each day.

PUBLIC COMMENT

MR. ZALES: Hell, I guess I've been the only one listening to you all.

CHAIRMAN NANCE: No, and I think others have been listening, but you at least will tell us something, and so I do appreciate hearing you stay. Thank you.

MR. ZALES: Well, everybody knows that I'm not bashful. A couple of things. First off, the easy one is on gag grouper, and, several months ago, I sent a request about gag to the council, and I think I copied you all with it, and I have re-sent that a time or two since, but the people I'm representing have got some serious concerns about gag.

I mean, in 2014, gag, according to the Fisheries Service, was a big success, and it was totally rebuilt and not overfished and not undergoing overfishing. We've been kind of back and forth over the years, and now the recent stock assessment says you go back into the 1970s and pretty much gags have been overfished and overfishing since the 1970s, before Magnuson was ever created, and everybody is wanting to know what happened and where did this go.

When you look at 2014, that had to include a lot of the red tide stuff that's in there, and so I don't know that that made the difference in there, but, anyway, we're kind of looking for answers for somebody as to what has happened over this twenty or thirty-year period.

Kingfish, we've got a problem in the northern Gulf with king mackerel. Me and my family got into the charter business in 1965, and we started with king mackerel. I've been fishing king mackerel, out of Panama City, since 1965. I have never seen three years in a row of no kingfish in the Panhandle, and it's not just in the Panhandle. Right now, from the last meeting in Corpus, we heard from people from Texas all the way to the Panhandle that kingfish was an issue.

The interesting there is, years ago with kingfish -- Apparently it had two stocks. You had a Mexican stock, which those go up to Texas, and you had a South Atlantic stock, pretty much, and that's what we fished on, and so you've got two separate stocks, but we're

having the same issue with both of them, coming from different directions.

The common thing, for us in the Panhandle, is bait. Clearly king mackerel don't come up from south Florida to look at bikinis on the beach, right, and they come up there, and they follow bait, and that's where they come, and, historically, we've had a whole lot of bait, but, over the past two or three or four years, bait has been an issue. It doesn't congregate on the buoys like it used to. The live bait guy, he catches in and around the beach some, but he hasn't been as successful either with it, and so we don't know what the deal is.

In talking to Eugene Raffield, which I'm sure a lot of you all know, and he's the big bait guy, he's had problems getting bait, over the past several years, and, in talking to him, his opinion is he thinks that -- Cigar minnows is what we use, which is the round scad, but he also had herring, and he thinks that the stuff that was dumped on the oil spill in 2010 has affected the bait reproduction, whether it's done something or whatever, and he goes back to the Valdez thing, and he said, when they had that spill, it took ten years to get back to normal.

Hopefully we're getting close to that period of time, if he's correct, but clearly -- I have asked some people, and I can't find anybody that knows anything about round scads or herring or anything like that, where they reproduce, how often, where they spawn, whatever is going on with them, but, clearly, we're missing it, and so there's a clear problem that we need to find out, because, historically, kingfish --

You would go six or seven years, and you would catch them all the time, and you would have a down year, and then you would get back, and they would go back in there, and so you would have this cycle that would go in there, but now we're into a three-year cycle that we haven't hardly seen any. If I caught two-dozen kingfish this year, I caught a bunch, and that's real bad, and so we need to seriously look at that.

CHAIRMAN NANCE: Bob, thank you for those. Any questions or comments from the SSC? David, please.

DR. CHAGARIS: I am interested about your observations on forage fish and thread herring, and we published a paper, and this was back in 2015, looking specifically at thread herring on the Florida Panhandle, and we found some significant relationships with river flow out of the Mississippi and transport mechanisms bringing those nutrients eastward onto the Panhandle.

That could be one possible explanation, at least for thread herring, that are more of a nearshore forage fish, but I'm interested, and I appreciate you sharing those comments, and it's something that I may look into a little bit, too. I can share that paper, if you would like.

MR. ZALES: Yes, and we would appreciate anything we can find out about it, because, like I said, clearly our bait situation, and, you know, the two correlate. Kingfish follow bait. If there's no bait, there's no kingfish, and so that's kind of what we're -- From the fishermen, that we're putting together.

CHAIRMAN NANCE: Thank you. Leann.

MS. LEANN BOSARGE: Thank you, Mr. Chairman. It's good to hear everybody's voices. I just wanted to chime in a little bit on the information that I heard about the CIE review for the bycatch upcoming, forthcoming, and I just wanted to kind of point out that it sounds like that whole effort is geared towards having something in place for the red snapper assessment coming up, and I wanted to point out though that how bycatch is handled for red snapper, which, from a bycatch standpoint, is somewhat data-rich, versus how it may be handled for king mackerel, which, from a bycatch standpoint, would be more data-poor, okay, if you wanted to qualify bycatch in those ways. It may be vastly -- Well, it will be vastly different, and so I don't know if it's a one-size-fits-all.

Then the other thing that I wanted to talk about is that, you know, we've lost some expertise within the Science Center over the recent past, and, I mean, I think that's evident just during the king mackerel stock assessment, where there was an inability to reproduce the prior results for bycatch, and so I think it is important to involve those outside experts, as many of your SSC members spoke up about, prior to getting to the CIE point in this process.

I really think you should lean on that expertise, learn from it, and make a stronger product going into, before you get to, to the CIE review, and so thank you for allowing me to give those comments.

CHAIRMAN NANCE: Leann, thank you so much. Any input from the SSC? Katie, please.

DR. SIEGFRIED: Thanks, Leann. We also need to consider approaches for all of the different species of interest, and so it is not a one-size-fits-all. It's just the first deadline in my head, and

we have to consider it for cobia, and we have to consider it for gray triggerfish, and we don't want a one-size-fits-all approach, and I do want to engage, and so I will be calling you.

CHAIRMAN NANCE: Katie, thank you.

MS. BOSARGE: I will be waiting by the phone. Thank you.

CHAIRMAN NANCE: Okay. Let's go ahead, and we'll adjourn our SSC meeting. I appreciate all of the discussion, and we've had some great discussions this time, as we always do, and we will look forward to our next meeting in January, somewhere around January.

MR. RINDONE: Probably the 10th to the 12th, but I will be sending you guys a poll.

CHAIRMAN NANCE: Hopefully the storm will stay out of the Gulf, and so we'll -- But best wishes to all. I appreciate all of you.

(Whereupon, the meeting adjourned on September 23, 2022.)

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