GULF OF MEXICO FISHERY MANAGEMENT COUNCIL

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

GMFMC Office Tampa, Florida

JANUARY 11-13, 2022

STANDING SSC VOTING MEMBERS

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

SPECIAL REEF FISH SSC VOTING MEMBERS

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

SPECIAL SOCIOECONOMIC SSC VOTING MEMBERS

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

SPECIAL ECOSYSTEM SSC VOTING MEMBERS

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

STAFF

John Froeschke.....Deputy Director
Karen Hoak.....Administrative and Financial Assistant
Lisa Hollensead.....Fishery Biologist
Ava Lasseter.....Anthropologist
Ryan Rindone.....Lead Fisheries Biologist/SEDAR Liaison

Bernadine Roy.....Office Manager
Carrie Simmons.....Executive Director

OTHER PARTICIPANTS

Taylor Beyea.....LGL Ecological, TX
Tom Frazer.....GMFMC
Michael Drexler.....Ocean Conservancy
Chris Gardner.....NMFS
Peter Hood.....NMFS
Dominique Lazarre.....FL
Dan Luers.....NMFS
Adam Pollack.....SEFSC
Scott Raborn.....LGL Ecological, TX
Ashford Rosenberg.....Reef Fish Shareholders Alliance
Beverly Sauls.....FWC, FL
Matthew Smith.....SEFSC
Casey Streeter.....FL
Ted Switzer.....FWC
Mike Travis.....NMFS
Brendan Turley.....FL
Bob Zales.....Panama City, FL

- - -

TABLE OF CONTENTS

TABLE OF MOTIONS

PAGE 38: Motion that the SSC acknowledges the work completed by LGL Ecological Research Associates, Inc. that highlights the potential importance regarding population dynamics and fishing opportunities of offshore oil platforms for reef fish species in the northern Gulf of Mexico. The SSC encourages SEDAR and the National Marine Fisheries Service to examine the results of the study in the context of upcoming reef fish stock assessments. The motion was withdrawn on page 44.

PAGE 93: Motion that the SSC endorses the collaboration between the Florida Commercial Waterman's Conservation (FCWC) group, NOAA Fisheries, and the Florida Fish and Wildlife Conservation Commission in monitoring red tide distribution, density, and effects on water quality parameters. Effort should be made to understand current limitations to expanding the FCWC's efforts and to potentially recruit participation by other stakeholder groups into similar research and monitoring efforts. The benefits of this form of cooperative research and monitoring are likely to be immense, as stakeholders on the water can often respond more quickly and efficiently than agency or academic scientists when environmental events, such as red tides, occur. Cooperative research also facilitates data exchange and enhances communication among stakeholders, researchers, agency scientists, and managers, thus improving the efficiency of the research, assessment, and management system. The motion carried on page 96.

PAGE 239: Motion that the SSC recommends that the Southeast Fisheries Science Center use the 96.7 million age-two-plus red snapper from the Great Red Snapper Count estimate of absolute abundance for catch analyses, to be considered at the March 2022 meeting, to enable the SSC to consider new management advice for OFL and ABC. The motion carried on page 253.

PAGE 255: Motion that the SSC requests that the Southeast Fisheries Science Center proceed with a post-stratification analysis of the Gulf of Mexico shallow-water stratum (ten through forty meters, per the Great Red Snapper Count), where possible, and present the results at the March 2022 SSC meeting along with a second catch analysis incorporating these post-stratification results. The motion carried on page 270.

PAGE 276: Motion that the SSC encourages the SEFSC to analyze how catch level increases could impact different fishing sectors, with respect to the ability to redistribute fishing effort according to localized abundance and depletion patterns. If sufficient social and economic data are not available for these analyses, the SSC

encourages the SEFSC to identify specific data gaps and needs for assessing the impacts of changes in catch limits. The motion carried on page 287.

PAGE 287: Motion that the SSC requests the Southeast Fisheries Science Center catch analysis look at the following scenarios: all structure, all structure plus 10 percent UCB, and all structure plus 15 percent UCB. The motion was withdrawn on page 296.

PAGE 298: Motion that the SSC requests the SEFSC catch analysis of the OFL look at the following scenarios: 1. All structure; 2. All structure plus 10 percent uncharacterized bottom (UCB); 3. All structure plus 15 percent UCB; 4. Incorporate two key uncertainties regarding (A) the total biomass that might be accessible to the fishery and (B) potential impacts to the stock from localized fishing. The motion carried on page 304.

PAGE 306: Motion that the SSC requests the Southeast Fisheries Science Center provide updated status determination criteria, rebuilding trajectory, and three-to-five-year catch projections as part of the red snapper catch analysis being provided to the SSC in March 2022. The motion failed on page 321.

PAGE 359: Motion that the SSC requests the SEFSC consider the collection of bycatch data on specific states' managed species identified by GSMFC TCC Data Management Subcommittee be added to the appropriate bycatch data programs. The motion carried on page 365.

- - -

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 Tuesday morning, January 11, 2022, and was called to order by Chairman Jim Nance.

INTRODUCTIONS
ADOPTION OF AGENDA

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

Council Staff in attendance include Carrie Simmons, John Froeschke, Ryan Rindone, Lisa Hollensead, Karen Hoak, and Bernie Roy. 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 the following topics: Adoption of Agenda; Approval of September 27-30, 2021 and November 18, 2021 meeting minutes; Scope of Work; Selection of SSC Representative for January Council Meeting; Review: Absolute Abundance Estimates for Red Snapper, Greater Amberjack, and Other Federally Managed Fish on Offshore Petroleum Platforms in the Gulf; Evaluation of APAIS Intercepts for Yellowtail Snapper in the Gulf; Review National Academies of Science Report on the Impacts of Limited Access Privilege Programs in Mixed-use Fisheries; Review Spatial Coverage and Severity of the 2020/2021 Red Tide on the West Florida Shelf; Review Simulation of the Effect of MRIP-FES Data on Catch Advice for a Historical King Mackerel Stock Assessment; Discussion of Draft Essential Fish Habitat Amendment and Data; Status Update on Red Snapper Management and Outstanding Council Motion; Summary of SSC Discussion and Recommendations on GRSC Report from March/April 2020 and September 2020 Meetings; Great Red Snapper Count Report: Re-analysis of the Florida natural/unconsolidated bottom-type data to include the random forest design stratification; Discussion of Post-stratification Analysis by SEFSC, FWC, and GRSC Teams for Florida Absolute Abundance Data; Fishery-Independent Indices Updates for Red Snapper; Review of Estimated Commercial and Recreational Effort over Uncharacterized Bottom in the Gulf; Summary Discussion and Potential Requests for Updated SEFSC Red Snapper Interim Analysis for Catch Advice for the March 2022 Meeting; Review NMFS Standardized Bycatch Reporting Methodology; Public Comment; and Other Business.

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

It's going to be -- I am not there at the meeting, obviously, and I am at home, and so, if you wish to speak and you're on the webinar, it's easy. Just raise your hand. If you're there attending the meeting, you need to make sure you get on the list, because the list that Bernie is going to show on the screen is the only one that I am going to have access to, as far as who would like to speak, and so please make sure, if you're at the meeting, or online, that you get on that list, so that we're able to communicate.

For the purpose of voice identification and to ensure you are able to mute and unmute your line, please identify yourself by stating your full name when your name is called for attendance. Once you have identified yourself, please re-mute your line. Let's go ahead and do that now, Bernie.

MS. BERNADINE ROY: Okay. Lee Anderson.

DR. LEE ANDERSON: Lee Anderson.

MS. ROY: Luiz Barbieri.

DR. LUIZ BARBIERI: Luiz Barbieri.

MS. ROY: Harry Blanchet.

MR. HARRY BLANCHET: Harry Blanchet.

MS. ROY: Dave Chagaris.

DR. DAVID CHAGARIS: David Chagaris.

MS. ROY: Roy Crabtree.

DR. ROY CRABTREE: Roy Crabtree.

MS. ROY: Thank you. Benny Gallaway.

DR. BENNY GALLAWAY: Benny Gallaway, here.

MS. ROY: Thank you. Doug Gregory.

MR. DOUG GREGORY: Doug Gregory.

MS. ROY: Thank you, Doug. David Griffith.

DR. DAVID GRIFFITH: I'm here, David Griffith.

MS. ROY: Thank you. Paul Mickle.

DR. PAUL MICKLE: Paul Mickle.

MS. ROY: Trevor Moncrief. Trevor is not here. Jim Nance.

CHAIRMAN NANCE: Jim Nance, here.

MS. ROY: Thank you. Will Patterson.

DR. WILL PATTERSON: Will Patterson.

MS. ROY: Sean Powers.

DR. SEAN POWERS: Sean Powers is here.

MS. ROY: Steven Scyphers.

DR. STEVEN SCYPHERS: Steven Scyphers is here.

MS. ROY: Jim Tolan.

DR. JIM TOLAN: Jim Tolan.

MS. ROY: Thank you. Rich Woodward.

DR. RICH WOODWARD: Rich Woodward.

MS. ROY: Thank you. Jason Adriance.

MR. JASON ADRIANCE: Jason Adriance.

MS. ROY: Thank you. Mike Allen.

MR. MICHAEL ALLEN: Mike Allen.

MS. ROY: John Mareska.

MR. JOHN MARESKA: John Mareska.

MS. ROY: Luke Fairbanks.

DR. LUKE FAIRBANKS: Luke Fairbanks.

MS. ROY: Cynthia Grace-McCaskey. Jack Isaacs.

DR. JACK ISAACS: Jack Isaacs, here.

MS. ROY: Mandy Karnauskas.

DR. MANDY KARNAUSKAS: Mandy Karnauskas.

MS. ROY: Thank you. Josh Kilborn.

DR. JOSH KILBORN: Josh Kilborn.

MS. ROY: Thank you. Steve Saul.

DR. STEVEN SAUL: Steve Saul.

MS. ROY: Thank you. Tom is out there, but we're having audio issues, and so you can go ahead, Dr. Nance.

CHAIRMAN NANCE: Okay. Thank you very much. The first item on the agenda is the Adoption of the Agenda. There is one thing that I wanted to discuss before we go into that procedure. Last time, Dr. Scyphers was able to talk with us and be able to show that public comments -- That we needed more than just having public comment at the very end of our meeting, and so, last time, we had public comment at the beginning and then at the end, and I thought that was good, to be able to listen to the public and hear what they had to say before our meeting again.

I want to propose, at this time, to have, each day at the end of our meeting, and so this afternoon and Wednesday and Thursday, to have public comment at the end of the day. That's what I would propose to do, and I think that would give us the ability to hear the public each day and then be able to listen and then go forward with the agenda, and so that's one thing that I would propose that we change in the agenda. Are there any other items that people would like to discuss or changes in the agenda, before we adopt it?

MR. RYAN RINDONE: Dr. Nance, we also have the scamp operational terms of reference under Other Business.

CHAIRMAN NANCE: Ryan, thank you for that. That's right, and so the scamp discussion under Other Business.

MR. RINDONE: Then you will need a motion to adopt the amended agenda.

CHAIRMAN NANCE: Yes, and do we have anything else to add to this? If there is no other additions or changes, I would like to go ahead and adopt this agenda, and we need a motion to do that.

DR. BARBIERI: So moved.

CHAIRMAN NANCE: Okay. Do we have a second?

DR. CRABTREE: Second.

CHAIRMAN NANCE: Thank you. Any opposition to adoption of the agenda? It looks like the adoption carried without opposition. Let's go ahead to the next, and that's the approval of our minutes from our last meeting. Each of us have had a chance to look at those minutes. Any changes that we need to discuss for that? If I don't hear any, can we have a motion to approve the minutes?

APPROVAL OF VERBATIM MINUTES AND MEETING SUMMARY: SEPTEMBER 27-30, 2021, AND NOVEMBER 18, 2021, HYBRID MEETING

DR. CRABTREE: So moved.

CHAIRMAN NANCE: Steven, did you have a question or a change?

DR. SCYPHERS: Thank you, Mr. Chair. It was mostly just a note to say that I sent some corrections to Jessica, which she's already made, but I don't believe it's in the posted version, and it's essentially just the transcription software struggled with Steven Saul versus Steven Scyphers a few times, and so we made those corrections throughout, but that's the only difference from the posted version. Thank you.

CHAIRMAN NANCE: Thank you, and I saw that, and I appreciate you doing that. We had a motion to accept the agenda and a second. Any opposition to accepting the minutes with that change that Steven outlined? It looks like the motion carried without opposition. Thank you, everyone.

The next item is Item Number IV, Selection of an SSC Representative for the Council Meeting in Baton Rouge. Do I have any volunteers that would like to attend that meeting in Baton Rouge at the end of the month?

SELECTION OF SSC REPRESENTATIVE FOR THE JANUARY 24-27, 2022, GULF COUNCIL MEETING IN BATON ROUGE, LOUISIANA

MR. RINDONE: Dr. Nance, that meeting is now virtual.

CHAIRMAN NANCE: Okay. Thank you. So do we have anybody that wants to do that virtually, or I will be happy to do that, too. Okay. It doesn't look like -- So I will go ahead and attend that meeting as the SSC representative and be able to do that from here in Galveston. Thank you, Ryan, for letting me know that. I appreciate that, and so I will be the SSC representative for that, and hopefully I always do a good job in representing this group, because you guys are a fantastic group of scientists.

Let's go ahead and move into Item Number V, which is the Review of the Absolute Abundance Estimates for Red Snapper, Greater Amberjack, and Other Federally-Managed Species on Offshore Petroleum Platforms in the Gulf of Mexico. Dr. Gallaway, you're on the list to do that, and I think Scott Raborn is also going to do that.

MR. RINDONE: Dr. Nance, Dr. Scott Raborn will be providing the presentation today for Dr. Gallaway.

CHAIRMAN NANCE: Okay. Thank you.

DR. GALLAWAY: Jim, I'm here, and I'm here in the hospital listening to you.

CHAIRMAN NANCE: Okay, and, when I heard your voice, Benny, I didn't know if you were planning to do some of that or not.

DR. GALLAWAY: Well, you know me, and I can't stay out of it, but, anyway, I'm enjoying it.

CHAIRMAN NANCE: Okay. Good and, Benny, it's good to have you online, for sure.

DR. GALLAWAY: Thanks.

CHAIRMAN NANCE: Scott, go ahead, and I will turn the time over to you.

REVIEW: ABSOLUTE ABUNDANCE ESTIMATES FOR RED SNAPPER, GREATER AMBERJACK, AND OTHER FEDERALLY-MANAGED FISH ON OFFSHORE PETROLEUM PLATFORMS IN THE GULF OF MEXICO

DR. SCOTT RABORN: This is a finalized report from the study we did for BOEM and BSEE. We presented some preliminary results back in July of 2019, but, since then, BOEM has accepted the final report, and we have since published the major findings in the *North American Journal*, just this past year. In light of that, we wanted

to --

MR. RINDONE: Dr. Raborn, can I cut you off real quick? You have to accept the presenter controls to be able to -- For us to be able to see what you're presenting on your screen. There should be a little dialogue box that popped up in the webinar window.

DR. RABORN: I apologize. It's my first time presenting over this kind of --

MR. RINDONE: Alternatively, if you would like, our admin team here can run the presentation.

DR. RABORN: I thought that's what we had agreed to.

MR. RINDONE: Okay. Then we'll go ahead and run that here.

DR. RABORN: As I said, we presented some of this in July of 2019, but we wanted to present the final results. This study was funded by BOEM and BSEE. This was born out of a need to assess the potential impacts from fish kills caused by explosive removals of offshore oil and gas platforms, and so, in 2016, we were hired to do just that, and our study focused in federal waters of the Gulf of Mexico, the western and central planning areas, from the limit of the state waters to water depths around 300 meters.

This is just showing the universe of standing platforms in 2017 and 2018 across Texas, Louisiana, Mississippi, and Alabama, and we stratified our study area into four different depth zones of ten to seventeen meters, eighteen to thirty, thirty-one to ninety, and ninety-one to -- Just to point out that 75 percent of these platforms occur off of the State of Louisiana.

This just shows the decline in standing platforms from 2000 to 2018. The numbers on top represent the number of platforms that were removed from the previous year, and it's broken out by depth zone. Basically, the objectives were to estimate the abundance of commercially and recreationally-valuable species living in close proximity to these platforms and that would be susceptible to mortality from explosions, and then we wanted to estimate the proportion that would succumb to the explosions, and, thirdly, we would want to estimate the impact that this would have to their populations, and then, finally, once this impact is determined, we want to make recommendations that could potentially minimize these impacts.

This was a diverse research team, including the University of Texas Auburn and Greenridge Sciences, and it was led by our company,

LGL Ecological Research Associates, and we were assisted by Bill Gazey, and I would like to mention that all of our field sampling was conducted with the use of commercial fishermen, notably Scott Hickman and Mike Jennings, and this had several benefits.

First of all, they really know what they're doing and how to do it safely, and we get to teach them about science and how you go about sampling, and they sort of take ownership of the data, and so it's sort of a win-win, in terms of citizen science.

We had three peer reviewers for our BOEM report, and this was Gregg Gitschlag, and he did some of the early work on losses due to explosive removals, and Dr. John Walter is a stock assessment biologist for NOAA, and Dr. Ed Chesney is a noted ecologist at Louisiana University Marine Consortium.

Some of these slides are recycled, and so my apologies, but I will move through them as quickly as we can. The salient points here is that we did the field studies during 2017 and 2018, May through October, and we targeted thirty platforms in each of those years.

This is a list of species that are associated with platforms, and some of them, or most of them, are observed, but we had to limit our focus to those that we can manage, and we chose the ones that had recent stock assessments, and that included cobia, gray triggerfish, greater amberjack, red snapper, and vermilion snapper.

We didn't see that many groupers, and so we left gag out, and the mackerels have a short residence time during the summer months, and so we didn't include those, and so those were five species that we addressed in this study, and we're going to focus on red snapper. We mentioned all species, but we paid particular attention to red snapper, and we had a pretty interesting finding for greater amberjack.

These are sample sites, and we used a stratified random sampling design, where, in each of the years, the thirty sites were chosen in proportion to how many platforms were present in each of those strata.

The way we estimated red snapper is, first, we estimated the total fish density in the water with hydroacoustic surveys, and so we had the total number of fish per cubic meter, and then we had to parse the total abundance in the various species, and we did that with submersible rotating videos, and we would drop those at ten-meter increments and take a rotating video for five minutes and then count everything that we saw, and then, basically, we used

the max count method, for those of you familiar with it, and, based on that, that's how we parsed the total fish abundance. We also did hook-and-line sampling to get age and growth and length and weight measurements.

This was done on -- The fish that we caught were sampled on the same day they were collected, and, in addition to hydroacoustic and SRV sampling, we wanted to spot-check our estimates, and so we chose a subset of ten sites to do mark-recapture studies on.

In addition to that, we also wanted to do acoustic telemetry to determine the site fidelity, and so we radio-tagged I believe it was fifty-nine fish, and then we followed them over the next couple of years and saw how closely they related to the structures and whether they immigrated or were caught or died from natural causes and so on. In addition, we took all the associated typical environmental data that one would take.

The point here is that we didn't get an estimate for each of the thirty platforms and then average them together. We modeled the total fish abundance separately with a generalized non-linear mixed model, and then we modeled the assemblage structure with a multinomial model, and we used those two outputs and multiplied the outputs together to get an estimate for an average for a typical platform within each of those strata that I mentioned.

I won't go into the detailed methods of all the statistics and the hydroacoustics and the SRV sampling. For one, we did that back in July of 2019, and, two, it's also in the publication that should have accompanied this presentation, and so you can read that, and I'm also happy to answer any questions.

This is the estimated number of each of the five federally-managed species. This is the number of fish on an average platform, as it were, and, basically, it covers a radius out to about a hundred meters. This is giving an example, or not an example, but it's showing the results of how closely related the total fish density was to the platform, and this is the horizontal -- On the X-axis is the horizontal distance away from the platform, and Figure A is 2017, and Figure B is 2018, and you can see that most fish are within zero to twenty-five, and so it decreases from there, but it's more or less the same pattern across years.

We saw significant numbers of these targeted species on the platforms, and, first, I want to talk about red snapper and how our model estimates compared to our mark-recapture estimates. There is a lot going on in this slide, and so, on the Y-axis, you have the number of red snapper on an average platform on a

logscale, and, on the X-axis, you have the various sites, binned by depth zone, where we conduct the mark-recapture estimates.

The gray columns represent the mark-recapture estimates with 95 percent confidence intervals, and the point estimate for that bar is at the base of the column, and so, for instance, in 2017, the Site 30, we estimated there was 5,347 red snapper. Most of these mark-recapture estimates occurred within the eighteen to thirty-meter depth zone, and we had one site that occurred in the thirty-one to ninety-meter depth zone, and, to compare that to our model output, that would be the horizontal black line with the 95 percent confidence intervals, the dashed lines, on either side of it, running across the top over the column, and you can see how well it compares.

For the eighteen to thirty-meter depth zone, our model output estimated there was 1,015 red snapper, and compared to the median value of all the sites, mark-recapture sites, within that depth zone, and we estimated that to be about 1,166, which is fairly close, and so there’s some assurance that we weren’t too far off target. This is just an output from two of the mark-recapture locations, showing the distributions for Sites 11 and 33.

Going back to the acoustic telemetry, these were the fifty-nine fish that were tagged, and some of them immigrated, and some of them were lost to fishing mortality and some to natural mortality. Some exhibited a homing behavior, where they left and then returned, and the panel on the right shows you the fate of each one of these fish, with the latter indicating whether they were active at the end of the study or they immigrated or died of natural mortality or died of fishing mortality, but you can see quite a bit of site fidelity, for the most part.

This just shows -- Again, it points out that most fish remained within about a hundred meters of the platform, and only 6 percent were more than ninety-five meters away from the platform.

This is kind of a cool graph, and this shows the kernel density of a given fish in three dimensions and two dimensions, and the top graphs show that the green is the -- I can’t even read it, but it’s 95 percent -- It’s the 95 percent chance that it’s going to be within the green area, and the red line shows the 50 percent.

We estimated fishing, natural, and total mortality of the program MARK, and one of the findings that we wanted to point out is that, in the shallow-water zone, seventeen to thirty meters, it suggested that there was a high fishing and total mortality and a low natural mortality, and so the fishing mortality was 0.75, and natural

mortality was 0.06, and total mortality was 0.81, and this just shows that the shallow-water sites were heavily fished, and we kind of already knew this, but it's nice when the data sort of fits preconceived notions.

This is the abundance of red snapper on platforms by depth zone and year and state, and it just shows that most of -- We saw the most red snapper abundance in the thirty-one to ninety-meter depth zone, and we saw the majority of them off of Louisiana, in Louisiana waters.

This is just a thing, a graph, on the top that puts together -- It's all states combined, and, again, you see the increase in the thirty-one to ninety-meter depth zone and then the biomass in pounds on the bottom.

Based on the most recent stock assessment at the time, in 2018, about 4.9 percent of red snapper existed on platforms, or, in 2018, 4.9 percent existed on platforms, and then, in just Louisiana platforms alone, it was 3.7. As an aside, Dr. Chesney and David Reeves also showed the importance of shallow platforms for age-zero and age-one red snapper, and it may be hard to see, but, if you look closely in these slides, you can see age-zero and age-one red snapper, numerous age-zero and age-one red snapper, on these platforms, these structures.

Moving on to vermilion snapper, it's a similar pattern, and you see the majority of vermilion snapper in the thirty-one to ninety-meter depth zone and the majority in Louisiana waters. This is across all states. 5.8 percent of vermilion snapper occur on platforms, Gulf-wide, or across the northern Gulf, and then 4.3 percent occur in the State of Louisiana.

Moving on to amberjack, amberjack, again, are more in the State of Louisiana and in the thirty-one to ninety-meter depth zone, but then a greater proportion are in the deepest depth zone. This is an important finding. Based on the most recent stock assessment, if our numbers are right, it says that 45.1 percent of greater amberjack exist on platforms across the study area, and, just in the State of Louisiana, 31.8 percent exist on platforms, and so either our numbers are high or the stock assessment numbers are biased low, or both, but, anyway, that's worth taking note.

Gray triggerfish, it's a similar pattern to red snapper and vermilion snapper. A very small percentage of triggerfish live on platforms, based on the most recent stock assessment.

Finally, cobia, and it's a little bit different distribution here,

and we saw a greater proportion, or a greater number, of cobia in the shallowest depth zone and then in the thirty-one to ninety depth zone, and it had to do with the migration of cobia during the May to October study period. Again, the most platforms occur in Louisiana, as you can see, based on this.

It's not as dramatic as greater amberjack, but still not trivial, and 8.1 percent, we estimate, live on platforms, and 6.3 percent off the State of Louisiana live on platforms, and so now I will go into -- We characterized the fish communities based on their hydroacoustics and SRV data, and we estimated their abundance, and so now we want to know how many we would lose to explosives under different scenarios and what we might do to mitigate that problem.

We based that on three scenarios, and the first is we based it on the actual removals that occurred during the 2017 and 2018 study period, and we looked at forty-seven platforms that were removed. In 2017 and 2018, 329 explosions were used to sever 319 pipes at forty-seven platforms in water depths ranging from ten meters to ninety-three meters, and we divided these forty-seven platforms into four depth zones, indicated in this table.

This just shows the location of these actual removals, and the second scenario we looked at would be what would happen if all remaining platforms in the study area were all removed at once, and there was 1,171 standing platforms in 2018, and these red stars represent the major fishing ports, and so the third scenario that we looked at was what platforms would be removed within 100 miles of each of these major fishing ports, and that’s the yellow polygons, and this just gets into some of the specifics about how we approached it, and we binned them within the horizontal distance from the platforms, vertical distances, and then we used random iterations to estimate the number of fish that we do kill based on the explosions.

This was 100,000 simulated fish, and so, for this report, over 100,000 simulated fish were placed around forty-seven platforms removed in 2017 and 2019, and then a mortality rate was calculated for 329 explosions, and then you can get a conservative input of 229 decibels, or you can use a less conservative input of 234 decibels.

This is one iteration of fish placement at Platform D1 in 2017 in a ninety-one-meter depth zone, and it shows the various horizontal distances away from the conductors, twenty-five, fifty, seventy-five, and a hundred, and, at this site, four conductors were exploded on the 3rd of July, and, basically, it killed everything that was within 100 meters, or 157 meters, of that explosion, and

so, when you remove a platform with explosives, everything dies.

Now we know how many fish live on the platforms, and we know that they're all going to die when you remove the platform using the explosives, and so now we want to look and see if that impacts the population.

These are the different red snapper mortality scenarios for explosive removals, and, based on the total stock size, it's pretty low. From the 2017 and 2018 removals, it's 0.1 percent of the population. If all the platforms were removed within a hundred miles of the ports, you're looking at 4.8 percent of the population, and, if you just took out every platform in the Gulf of Mexico, northern Gulf of Mexico, it's only about 5 percent of the population, and so we're not looking at a big concern for red snapper there.

It's a similar finding for vermilion snapper, and the impact of the estimate is virtually nil for the gray triggerfish, and, based on -- For cobia, if you take them out at the rate that they did in 2017 and 2018, you're not talking about a large percentage of the population, and it's unlikely that they're going to take out all the platforms at once, but, anyway, you can just look at the worst-case scenarios, and, if that did happen, of course --

It's not as bad as the next slide, which is greater amberjack. Again, we're estimating that a larger percentage of the greater amberjack population reside on these platforms, but, at the rates of removal in 2017 and 2018, it's not a big concern, and, of course, the worst-case scenario is just a function of the fact that a large percentage of the population lives on these platforms.

However, it may not -- Explosive removals may not have a huge impact on the species that were looked at for this study, but, for local fishermen, it is important. These platforms are targeted by the local fishermen, especially in the recreational sector, and removals in the western Gulf in 2018 killed the equivalent of 35 percent of red snapper total landings taken by the commercial and recreational fisheries, and that was estimated for 2016, and that's the most recent landings that were available.

Then, just in Louisiana, it accounted for 16 percent of the allowable catch limits, and so these removals can affect the local stakeholders, by reducing the catch limits. Now, I'm not saying that all of these fish that were lost to explosives, or would be lost to explosive removals, would have been caught, but it does show that the impact to local fishermen can be substantial.

In some areas of the Gulf, like western Louisiana, the mud-bottom substrates dominate, and, aside from these petroleum platforms, there is very little reef habitat available. In the western part of Louisiana, hard substrates include 866 platforms, 327 large artificial reefs, and thirteen or so discrete named banks, and so the platforms count for about 72 percent of the non-discrete habitats in this zone, and that would likely affect the local fishermen.

In addition to this, there is areas where, based on our shrimp trawl dataset, that just virtually no trawling occurs, and these are potential areas where uncharted reef habitat may be more extensive than we realize, and so one of the take-homes from this is that better management of the substrate in this zone is paramount.

Again, the platforms are likely going to impact local stakeholders, especially in Louisiana and in western Louisiana, and losses through explosive removals in 2018 constituted 16 percent of the total allowable catch, and it’s an effect on the private recreational sector, and fewer fish would be available, and the allowed take would be reached sooner, thereby shortening the season. Mitigation credits might be considered if the platforms were removed using non-explosive methods.

To conclude, an array of recreationally and commercially federally-managed reef species aggregate to varying degrees around offshore oil and gas platforms. These aggregations typically represent a small fraction of the overall stock. However, it appears to be pretty important for greater amberjack, around 45 percent of the population.

Platform removals are likely having, or will likely have, significant adverse impacts on local fisheries, especially off of Louisiana and Mississippi, and, in these specific areas, a case can be made that platforms help with increased reef fish productivity, as opposed to merely aggregating the fish, due to the apparent absence of other suitable habitat. Basically, if it’s surrounded by nothing but a mud bottom, it’s the only habitat around, and it’s different than if the reef is located say near the Flower Gardens or natural banks or more gravel substrate, and there is evidence presented that there may more reef fish habitat in these areas than is current recognized.

Sorry for the stilted nature of that presentation, but I blame Benny for that, and I hope that I did it justice, and, with that, I will take any questions.

CHAIRMAN NANCE: Dr. Raborn, thank you very much for that presentation. Are there any SSC members with questions or comments? David, please.

DR. GRIFFITH: This is probably outside the scope of your study, but what is the rationale for removing these platforms in the first place? I mean, do they present a hazard for navigation or shrimp trawling, or why would they do this, and they seem to provide some benefit, and, I mean, are they contaminating the ocean bottom or what? I mean, I'm just curious why they want to explode all these platforms.

DR. RABORN: Well, there is probably someone else in the audience that can answer this question better than me, but a lot of it has to do with legalities, and I think that it's one of these issues where it seems like everybody is in agreement, fishermen and the oil and gas industry, and it's a benefit to leave them there, and it's cheaper.

DR. GALLAWAY: Can I speak?

CHAIRMAN NANCE: Yes, Benny. Please.

DR. GALLAWAY: It's required by law. When they went in, shrimping grounds were taken up, and they were navigation hazards, to some degree, and, when they went in, the agreement was, at the end of their productive lives, they would be removed, and so it's a legal requirement that they be removed, and I think that people are working today to try to optimize removals, not only the how they remove them, but artificially reefing some and reaching agreement as to how they can take both advantage of the resource that they've been providing and keep that resource, and so it's an ongoing discussion. Thank you.

DR. RABORN: Thanks, Benny.

CHAIRMAN NANCE: Thanks. Will.

DR. PATTERSON: Thanks, Jim. I'm just curious about if you can explain a little bit more about how the video was used to inform the sonar estimates, and, in particular, what you guys did to try to address the behavioral reaction of fish to your camera gear. You know, we have several species that you highlighted here that tend to have different reactions to cameras, with amberjack being among the more gregarious with anything put in the water, whether it's a diver or an ROV or just a stationary camera, and they tend to come check it out and aggregate around that gear, which has the potential to impart considerable positive bias in estimates, and

so I'm just curious what you did to address that difference in behavioral reaction and how that may have, or maybe wasn't, incorporated into your scaling up with respect to the sonar.

DR. RABORN: That's a good point, Will, and no doubt it did bias -- It had to have biased some species up and down, and we're getting basically -- It's compositional data, and so, if it biases one species up, it has to bias another down, and greater amberjack may have been one of those that went up, and others, and I don't know which ones they would be, but they went down.

I will say that we didn't use any bait, and it doesn't mean that every species was estimated accurately, but it was, at least for red snapper, a little comforting to see that the model outputs seem to match the mark-recapture estimates as well as they did. I mean, if they were way off, then you don't know what you have, but, given how close they were, it gives you some comfort level for at least that species. Now, how to go about quantifying and correcting for that, in terms of for some species versus others, I am open to suggestions.

CHAIRMAN NANCE: Benny, it looks like you have maybe an answer.

DR. GALLAWAY: Not really, and, Scott, you might speak to the things we did to look at how similar -- How our apportionment may have worked, or how biased they might have been, and do you want to speak to that?

DR. RABORN: I mean, I didn't say anything, because it's a slightly different issue, but, Will, one of the criticisms we got when we were trying to publish this paper was one of the reviewers pointed out the potential bias caused by what I would term screen saturation. In other words, if you just -- In any one frame, if you saw -- You can only capture so many individuals, and maybe, if there were 5,000 out there, and you only got 3,000, then it's biased low.

We did the max count method, which is you drop the SRV camera down for an interval, and you leave it there for five minutes, and it does a rotation of I forget, but about like six revolutions, and, basically, we -- For each species, we took the frame where we saw the greatest number of individuals, and that's the max count method, and then that's how you get your relative abundance, based on that, and there has been a multitude of papers published on how to go about doing that and the effects of screen saturation and how that would affect your absolute index of abundance, is what they were looking at.

Basically, what they found was, in most cases, the max count is not that biased, and it's linearly related, and it's not an absolute estimate of abundance, but it is an index of abundance that is more or less linear related with absolute abundance, but we were doing something a little different.

We were looking at relative abundance, and what I mean is all the abundance of the species that we were looking at had to sum to one, and so nobody sort of looked at how something like screen saturation might bias that, and so, for the publication, we did a simulation, based on observed relative abundance that we saw there in the study, and the relationship that we got from a couple of papers in the literature, and, basically, it's pretty robust to that form of bias, but, again, that's not getting at what you're talking about.

DR. GALLAWAY: Speaking to that, Will, yes, indeed there is some bias, but, as Scott pointed out, our mark-recapture studies for red snapper gave us confidence that we were pretty close there. Then, looking at the other species and the total numbers by depth zones, just based on what you would expect the -- The numbers seem very reasonable, on a proportional basis, and so I don't think there's a huge bias in the total numbers, in my opinion, but, yes, there is certainly some bias.

CHAIRMAN NANCE: To that point, Scott, and I think I heard you right, it said, if one species is biased low, another species would have to be biased high, and is that --

DR. RABORN: That's right.

CHAIRMAN NANCE: Okay, and so these are not absolute, and you're doing relative abundance here and not absolute, and so you're not looking at each species independent of another.

DR. RABORN: Well, we get an independent count of each species, a max count, and then we add all those up and divide by the total, and then you get a relative abundance of each species, and so, if you've got a max count that was too low, because of screen saturation, or because of -- My vocabulary is failing me, but they avoided the camera, and then that's going to cause some other species to have a greater relative abundance, that would make you apportion more of the total fish abundance from the hydroacoustic estimate to that species.

If amberjack are gregarious, as Will was just saying, then our numbers could be biased high, because of that, and, like I said, the fact that we kind of -- Based on the recent stock assessment

that said 25 percent are living on platforms, it's not an either/or, and it's not that our study is completely biased high or the stock assessment is completely biased low, but it's probably a combination of both, but I don't know -- I would be suspicious that bias in our study just totally accounts for such a high percentage. I don't know, and what's your feeling on that, Will?

DR. PATTERSON: Well, thanks for tossing it back here. Benny mentioned, and you did as well, about the mark-recapture experiment and how the estimates, your sonar/video-based estimates, of red snapper were at least within the confidence intervals of your population estimates at platforms where you did mark-recapture.

That actually matches pretty well with the behavioral experiments that we did for red snapper in Florida and the Great Red Snapper Count, that showed more or less that red snapper had a neutral reaction to the gear, and Sarah Grasty's work with C-BASS -- You know, red snapper had a slightly positive reaction to the C-BASS sled, some work that she published I think in 2014. For red snapper, I agree that we have corroborating evidence now from a few different studies that show that, more or less, the camera gear -- That they have a neutral reaction.

Amberjack is a different beast, and triggerfish as well. Triggerfish are fairly gregarious. If we're flying our small ROVs through the system, and we're getting kind of hung up, sometimes we just flip on the back camera, and there's a couple of triggerfish pulling on the tether, and so they tend to follow the gear and are attracted to it, and amberjack, in my experience, is the most gregarious, and Sarah Grasty's work on this with C-BASS also shows them as the most positively attracted to the gear.

I just think, for that particular species, we end up with these positive biases when we use sonar calibrated with video for that gear, and just one more example of that is there was an RFP for amberjack, not too long ago, to do a Gulf-wide up and then up the east coast study for amberjack, and so the team that I led, that submitted a proposal for that, we went back to the Florida red snapper data, where we had nine-hundred-and-some sites along the Florida shelf, artificial and natural, where we had stratified, using the random forest model that Zach Siders and Rob Ahrens put together for red snapper.

The stratification was based on red snapper probability of encounter and not amberjack, but we used -- We assumed a simple stratified random sample to estimate what the amberjack population in Florida would have been, given the amount of times we encountered them.

We encountered them rarely, and they were in less than 10 percent of the samples. Yet, when we expanded that number up, we got twenty-one-and-a-half million fish, with pretty broad confidence intervals, but still twenty-one-and-half million fish in Florida, which is many, many times greater than the assessment estimated.

When we saw amberjack, which was infrequently, we saw a lot of them, and we have actually -- We didn't try to quantify their behavior with any means, but they crowded around the ROV, and so I'm just wondering if perhaps this estimate that you have for amberjack, based on this approach, is actually quite a bit inflated, and not just a little bit inflated, given their behavior, and then that has, obviously, implications for your explosive removal estimates, that, if you remove these platforms, you're going to knock out half of the amberjack stock. That doesn't seem plausible to me, and it seems that it's likely related to their behavior.

DR. GALLAWAY: Will, thank you. Those are very good points, and is Taylor Beyea from our staff on? Can she be unmuted? Is she an attendee? I was wanting to have some of the field people talk about the direct observations and the behavioral reactions.

DR. RABORN: I don't know, Benny, and I can't see the list.

CHAIRMAN NANCE: I don't see her on the list, Benny, as far as attending.

DR. GALLAWAY: What about Kyle McCain?

DR. RABORN: No, probably not.

MS. ROY: No.

DR. GALLAWAY: Okay. I don't think the bias was that great. I'm fairly confident with the numbers and I recognize the potential for it, and I don't argue the points strongly, but I feel comfortable that the numbers that we obtained are reasonable and are not greatly inflated due to bias, and I'm not sure that we saw that same behavior at platform sites that -- But I stand to be corrected, if it comes to it, but I believe the numbers are consistent with the observations. Thanks.

DR. RABORN: One thing I was just thinking about is, if they're gregarious, and they're attracted to the camera, then there's a better chance that you're counting all of them, or you're getting a better representation of them, and it's the ones that are

avoiding the camera that are probably biasing it more, and I don't know.

CHAIRMAN NANCE: It looks like, to that point, Taylor and then Nathan, please.

MS. TAYLOR BEYEA: As far as direct observations go, you certainly get some more mobile species, like the amberjack, and some of the jacks that are -- They are more mobile, and we did see quite a few of them on a lot of the deeper-water platforms, and there may be -- I mean, there is definitely some bias in behavior there, but we did -- There were a lot present, and I'm not sure that I can say exactly what the level of bias would be, but we -- There are certainly a lot of them present on a lot of the platforms, and they did make up a substantial part of the community. I am happy to try to take more nuanced questions on their behavior.

CHAIRMAN NANCE: Taylor, thank you. Nathan.

DR. NATHAN PUTNAM: I was just trying to get you all's attention for Taylor, and so that's fine. If you have any specific questions about the video footage or things like that, we're around to answer those questions.

CHAIRMAN NANCE: Thank you. Jack.

DR. ISAACS: Good morning, everybody. I have two observations or thoughts. First, I wonder if fishers are aware of the high mortality of these depth charges, essentially, at these sites, and is there an interest among fishers of targeting those areas at a heavier rate before the explosions, under the thought that, well, these fish are going to die anyway, and they may as well be in my cooler than blown to smithereens, and I wonder if that's been an issue in the past, or if we anticipate that being an issue in the future.

Then my second point, or question, speculation, whatever, and I don't know enough about these fish to know if this is a problem, if they're migratory, how much they move around, but does the removal of these rigs at deeper water lead to increases in relative or absolute abundance or utilization by these fish of shallower reefs, or shallower habitat, where they're more likely to be caught, if there's kind of a problem that we're pushing them in towards shallower water when we're removing these things, and is there a way to account for that in the modeling?

DR. RABORN: I apologize, Jack, and my mind drifted. What was your first question again?

DR. ISAACS: The first point is I could imagine that word of this is going to get out. By removing this rig, maybe we should be allowed to fish that rig more intensely, or maybe we should just go and fish that rig more intensely, in order to catch these fish, before they depth-charged to death, and I just wonder if that has popped up in the past.

DR. RABORN: It was photos of some of these fish kills that made the front pages of papers in south Louisiana that probably motivated the funding for this study. It doesn't sit well with fishermen when they see all these fish dying, and what we wanted to do is try and coordinate with these companies that were removing these rigs and go out and sample them before and then collect as many fish as we could after they had gone, but the problem with that is they get permitted to remove these structures, and then they really don't have to tell anybody anything, and they just pick a nice weather day and try and maximize safety as much as possible, and you might get twenty-four hours' notice, but we couldn't even get that, and so I don't -- The mechanism is not there, currently, to do what you're talking about, and it makes sense, for sure, but I don't know how to make that happen.

DR. ISAACS: Well, I would worry about safety of a bunch of fishermen targeting an area that's about to be blown up, I think, and that could be --

DR. GALLAWAY: That safety is taken care of. There are boats on the scene, and there are people excluded, and I might also note that there's a move away from explosive removals. There are alternative methods that are more expensive, but are more commonly evolved nowadays, and so this -- It's a problem, but it's a diminishing problem.

CHAIRMAN NANCE: Plus, I will add that this has been -- The removal process has been going on for decades, and so this is not just something that has happened overnight, but platform removal has been going on for decades now. Mike.

DR. RABORN: Jim, may I address his second question?

CHAIRMAN NANCE: Okay. Go ahead, yes.

DR. RABORN: I understand that he wants to know, if you remove these platforms in just one area, then the fish will move to other platforms, where they will be more susceptible to harvest, and, well, that might happen, but our biggest concern is not just that mortality due to the removal itself, but it's the permanent loss

of the habitat and all the future production that that entails, and that's the real loss here, in terms of the impact.

DR. GALLAWAY: On a localized basis.

CHAIRMAN NANCE: Thank you. Thanks, Jack. Mike, please.

DR. ALLEN: Thank you, Mr. Chairman. I was trying to get my head wrapped around how this would look as far as an annual mortality source, and my question is what fraction of these platforms are removed per year? If you were going to put this in an assessment, as far as an annual mortality source, we would need to know what fraction of those are affected per year, and I'm just curious if those data exist.

DR. GALLAWAY: If you go back to some of those first graphs, and you see those bar graphs with the numbers removed each year, and the total number of platforms, and those numbers are all available, and I don't have them right off the top of my head.

DR. RABORN: Like, for red snapper, it would be Slide 57. If the rates at whey they were removed in 2017 and 2018 continue, we're talking about 0.1 percent of the population, based on the most recent stock assessment, and it's much less than that based on what the Great Red Snapper Count is showing.

DR. ALLEN: Okay. Yes, that's helpful. I understand why you would do the estimate of, if they were all removed, what would the impact be, but that annual rate is informative for management.

DR. RABORN: We did the total estimate just to see, because, if that doesn't affect anything, then what are we arguing about, but the --

DR. ALLEN: Understood. All right. Thank you.

CHAIRMAN NANCE: Thank you. Will.

DR. PATTERSON: My hand was just left over from the discussion earlier.

CHAIRMAN NANCE: Thanks. I just wanted to make sure. Trevor.

MR. MONCRIEF: I just wanted to kind of -- Looking at the scope of work and everything else, I'm sure we can argue the overall proportion of affected amberjack and everything else all day long, and I do think the logic still stays. I would imagine that greater amberjack are more proportionally affected by these removals, and,

to go back to the question about the rate of removal over time, in our area, it has been precipitous, and that's probably the best word to use to describe it since this 2018 end on this figure that was provided, and it has continued, and I think we've probably lost 70 percent of our platforms over that time period.

Now, I did have a question, maybe for the staff, essentially to the scope of work, but, to me, I see this as informing policy, and I feel like us, as a group, we can talk about the merit of it all day long, and I do think this is very informative, as far as passing this along and up the chain, and just basically reiterating the importance of these kind of structures, and I also think this may play a role in the ongoing conversations about wind and what's going on on the BOEM side and maybe trying to think about these issues before the plans are drawn up and the agreements are put into place, so that we kind of don't run into the same problem that we did for these oil and gas platforms, and so that was my comment.

CHAIRMAN NANCE: Thank you. Trevor, you're talking about 70 percent, and that's Mississippi alone, correct?

MR. MONCRIEF: Yes, that's Mississippi alone, but you can see all the dots that are offshore of Mississippi, and all of our forty-mile rigs have been removed since 2018, which are the ones about halfway out, and then the ones on the shelf are disappearing pretty rapidly, and all the ones across Chandelier and all the way up to the City Ridge have pretty much been removed as well, and we've been monitoring those yearly as part of our NFWF reef fish sampling, and so we've got a pretty good eye on all that stuff.

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

DR. POWERS: Thanks. Just to kind of circle back to the attraction issue for amberjack, we see it too with the ROVs, in particular when we fire up the props on our ROV, and I realize that yours didn't have props, but we can definitely pull amberjack into the ROV.

For a video-based count only, I mean, I guess it depends on how big of an area you think those amberjack can respond to, but your method, where you're combining the video and the acoustics, I want to revisit something that Jim said. If Will's point, and I understand the logic of it, is that you're overestimating amberjack, that does mean you're underestimating something, because you're assigning those targets to amberjack, assuming that amberjack are attracted more, and so those targets should have been assigned to another species that would have given you a higher

count of that species, and am I understanding the methodology correctly?

DR. RABORN: That's exactly how it would work. If you overestimate one species, you're going to underestimate another.

DR. POWERS: Okay, and so, with that said, if you're overestimating amberjack, say just for example, what species do you think you are underestimating? Which one is similar, in terms of target return and those things, as far as the acoustics go?

DR. RABORN: It would be spread proportionately across the other species in the assemblage.

DR. GALLAWAY: Scott, if you go back to the table of numbers, what is the relative abundance of amberjack by depth?

DR. RABORN: If we go back to Slide 18 --

DR. GALLAWAY: I am looking at a cellphone, and I can't read the numbers. Can you read the numbers for amberjack?

DR. RABORN: For greater amberjack, in the ten to seventeen-meter depth zone, it was fourteen per platform, and then eighteen to thirty meters was thirty-two, and thirty-one to ninety was 487, and then ninety-one to 300 would be 587, and you compare that to say red snapper, and it would be 45 -- Anyway, you can look at that table, and you can see it as well.

DR. GALLAWAY: Also, we're getting a size index, too. Guys, I know, and, with the SRV and lowering it, I don't think the attraction issue, or bias, is as great as perhaps other methods, and that's my opinion, and these numbers seem reasonable to me.

DR. RABORN: The error, Sean and Will, I don't think is going to come from -- It's not going to be a big concern, and so let's say if greater amberjack was the only species that was gregarious and we were overestimating them, and that error is going to get spread across all the other species, and it's just not going to have a big impact on their abundance, but it is going to have -- It would have a substantial impact on greater amberjack, as you pointed out.

DR. POWERS: For us, like I said, the stationary part of the camera is moving, and the amberjack, for us, seems to be more attracted when that ROV is moving through the water, but I also agree with Will in that triggerfish are also very curious, and I don't think it matters if it's a stationary or moving target for triggerfish.

They're just going to come see what's going on.

DR. GALLAWAY: I expected -- I was disappointed in our triggerfish, and we didn't see many triggerfish.

DR. RABORN: That area you're talking about -- Let's say, for the deepest zone, the ninety-one to 300, like the Bermuda chub was 1,405, and crevalle jack was two-thousand-and -- I can't make that out, but that's going to take the lion's share of whatever error was caused by overestimating greater amberjack. Does that make sense?

DR. POWERS: Yes, and I just wanted a little more discussion on this, but that's it. That was fine discussion. Thanks.

CHAIRMAN NANCE: Thanks, Sean. Roy.

DR. CRABTREE: I appreciate the presentation, and it's very interesting and a good discussion. This is an issue that has been floating around for at least twenty years, and I've been involved in discussions at the Hill and at council meetings many, many, many years ago about this, and it flares up periodically, as a video with fish floating up to the surface, and I know the Science Center has done analyses on and off over the years, to try and look at the potential impact of it on the stock.

I guess my question is, Jim, it's a good discussion, but is there anything in particular that we're being asked to provide, in terms of advice, or is there an endpoint that we're trying to get to here, or is this just sort of informative?

CHAIRMAN NANCE: Right now, we want to just do the discussion, Roy, but the endpoint is do we have, as an SSC, any recommendations to the council, and do we have any recommendations on how to use this data in any future assessments, and so those are the two aspects that we want to make recommendations, if we have any, so the council is able to look at that. How would the council use that, recommendations to the council on the use of this data, and how to consider using it in the future.

DR. CRABTREE: Okay, and I would point out too that this is more than just a finfish issue, and there are a lot of implications with these explosives, in terms of sea turtles, marine mammals, and protected resources, and so this is also something that is looked at in biological opinions and various other places, and a number of constraints are put on how this is done, in terms of observers and all those kinds of things.

CHAIRMAN NANCE: Thank you, Roy. Harry.

MR. BLANCHET: Kind of to get back to the point of where we were with the scope of work, what Ryan provided is asking a question, essentially, of is that -- It's the question of how much of that estimate of amberjack is captured within the known stock, and is it that amberjacks are larger than the SEDAR estimates, or is it -- Is that much of the stock really characterized off of those platforms, and one of the things that I was hoping to see more of, and in both this and the other, is that question of how is the size distribution, and there is a mention in the publication in the *North American Journal* that they did a sample, and most of the amberjacks that they saw were over -- They averaged 12.6 kilograms, and they were large fish.

That's on kind of the top-end of the tail of the size distribution in what we would see in recreational harvest, and so I don't have an answer to the question that Ryan posed, but it does seem that, between the site fidelity, which is still an unanswered question to me for amberjacks, and the -- I mean, I know that there has been some tagging, but I just haven't seen the results of that tagging, and that's some stuff that the University of Florida did some years ago, and I think that there is information, but it's a struggle to get that into the -- I don't know how well Stock Synthesis is currently capturing that stock in the western Gulf when there is so small of a recreational or commercial harvest of amberjack from that region, and so it's more of a comment than anything. Thank you.

CHAIRMAN NANCE: Thank you, Harry. Will.

DR. PATTERSON: Thanks, Jim. I think one of the more interesting things about this is so we have several sources of information, and I am focused mostly here on red snapper. Going back to the Karnauskas et al. paper from 2016 and then the results of the Great Red Snapper Count Gulf-wide and habitat-specific estimates of abundance, and then, here in the Gallaway et al. study that's been presented, we have data from several sources now that doesn't back up the perception that artificial habitat platforms, artificial reefs, et cetera, hold a large percentage of the red snapper stock.

That's an idea that has been discussed in many different scenarios, management scenarios in particular, over time. Joe Powers had done a couple of analyses early on, looking at what the effect of explosive removals might be for red snapper, and the estimates were that they would be fairly insignificant relative to other sources of mortality.

Now, for red snapper here, the estimates are pretty similar. Even if all of the platforms had been removed, it's only like 5 percent of the population would be affected, and so, while a large percentage of the population of red snapper appears, based on several different independent estimates, to be associated with artificial reefs and artificial habitat, in the form of platforms, the component of the study that examined the percentage of effect of removals relative to distance, a hundred miles, from a given port, and, you know, clearly, in south Louisiana, because of the density of platforms, the effect would be greater on the fishable habitat.

As the authors here point out, there is likely much more natural habitat out there than the perception that exists, but fish are at lower densities, as the Great Red Snapper Count showed, and, therefore, they're more difficult to target. I mean, even off of Alabama, which has the highest density of artificial reefs in the Gulf of Mexico, or maybe on the planet, given the area of the shelf, two-thirds of the red snapper that were estimated for that region in the red snapper count were estimated to come from natural bottom habitats and not artificial reefs.

There is a difference here between the management implications for access and targeting and the high CPUE that occurs on these platforms and other artificial reefs versus the population dynamics of the stock, right, which appears that it would be fairly minimal on the stock itself, given that most of the biomass is located away from these platforms, but the issue really is about -- The management issue, to me, seems to be mostly about access to the fishery and where fishermen like to go catch red snapper and other species.

DR. GALLAWAY: Will, I agree entirely, and it's a localized issue. It's access to the fishery and local impacts on local fishermen, as someone from Mississippi spoke earlier, and the same thing has happened off of Corpus and various other places and so, if we go forward with wind energy, we need to take all of these things into consideration, and, also, we need to maximize artificial reef potential, as we can, and so thank you.

CHAIRMAN NANCE: Thank you. As we start to wrap up this discussion, we need to be thinking of motions and recommendations to the council that we can make. Roy, please.

DR. CRABTREE: Just to follow-up on what Will was saying, I think he's right on, and I really think that the proper context to think of artificial structure and reefs is in terms of their effects on catch rates and whether we're overall looking that we want to do

things that lead to higher catch rates or we want to do things that reduce catch rates, and that's the proper way to think of it.

Really, it's kind of like bag limits and size limits and other things we do, and trip limits, that are designed to affect the rate at which fish are caught, and, if you put more structure out, you're going to have higher catch rates, and fish are going to be caught faster, and so I think that's really the context that we ought to put discussions of artificial reefs in, and it's just kind of an awkward management scenario, because the agencies that actually have decision-making power over this aren't agencies, typically, where fishery management is part of their mission, but I think that's the way we ought to be thinking about this.

CHAIRMAN NANCE: Paul, please.

DR. MICKLE: Thank you. I am trying to figure out what kind of motion could be made, Chairman, and how we understand it, and so maybe I can spur the group with a little bit of a couple of questions, and it's not directed toward anybody, but are the methodologies valid? I think we've discussed that here.

Are these data regional in nature? I don't know, and I didn't hear anything conflicting to that statement, and so maybe not, but how is this data useful to Stock Synthesis and in a way where the Southeast Science Center can really benefit from it and our recommendations to do so, and so my question to the group is, you know, what kind of indices can we pull from this data, and is it abundance, or is it some sort of survey input toward it, and, reading up on SS, as I'm more familiar with ASAP, but, understanding SS, survey input can be very useful, but it's not absolutely necessary, and so how valuable is this to Stock Synthesis, and how can we, I guess, review it in such that could be beneficial for the Center. Thank you.

CHAIRMAN NANCE: Thank you, Paul. Harry.

MR. BLANCHET: I want to join the chorus of agreeing with Will in terms of the context of this for red snapper, and I disagree with that same for greater amberjack, and I think we still have an open question in terms of whether this is a significant fraction of the stock, and it may be that a good spur for more -- Either review of existing data or additional studies, to try to better characterize what's really going on with the amberjack off of those large platforms. Thank you.

CHAIRMAN NANCE: Thank you, Harry. Trevor.

MR. MONCRIEF: I just wanted to pretty much agree with what Harry just said, and, I mean, I think there's some interesting information here, especially on greater amberjack, a species that is really going through a lot of management turmoil over the last decade, and it's getting ready to go through a little bit more now, and I think, to me, the work that was done really highlights the importance of these structures and the importance of keeping these structures in the water, whether it be through advocating for various policies or through the rigs to reef program or anything else.

You know, that's not quite the SSC's purview, but I think we can certainly speak to the beneficial nature of the structures themselves, when it comes to the biomass of the stock of the northern Gulf of Mexico. Anyway, I just wanted to agree with what Harry just said. I mean, I think there are some questions here for greater amberjack that could probably be asked.

CHAIRMAN NANCE: Okay. Thank you. Obviously, the report and everything is -- We have a published report that we're looking at, and any of the species, during the SEDAR process, would have access to this, and I think, from a data standpoint, be able to glean data out of it that could be used during the assessment process. Do we have any specific recommendations that we would like to make to the council with regard to snapper or amberjack and any specific motions about how to consider using this data in the future? Will, please.

DR. PATTERSON: Well, I will certainly listen to whatever motions are offered by various SSC members. My personal perspective is that we've had a pretty robust discussion here, and I think, if we all paid attention to the report and made sure that various points that were made are captured in the report, that should give the council plenty of information about what we think about the implications of this study and then kind of broadening it out to other recent studies, which have examined similar types of questions. I can't think of a motion that might capture all of that, or even parts of it, but, anyway, I will listen to what others have to say.

CHAIRMAN NANCE: I agree with you, Will. The fact that, from my perspective, and I'm just a single individual here, but we're looking at this, and, just like we've seen in other reports in the past, those are all put together during the SEDAR process, during the data workshop, and data that is gleaned from these specifically can be used in a stock assessment and looked at during that SEDAR process, and that's what I would think would happen here. Ryan, to that point?

MR. RINDONE: I was just going to say, Mr. Chair, that, if there is a specific recommendation to the council, even if it's not, you know, a recommendation to necessarily do anything, but just an acknowledgement of any sort of finding that the SSC can agree upon, then anything like that could be of use to the council when it considers other things that are brought before it, and so just to note that.

CHAIRMAN NANCE: Thank you for that. Paul.

DR. MICKLE: I think you all kind of captured it there, and I was just playing out scenarios, and so, Dr. Nance, if you're up there, I guess, briefing the council virtually next month, and they say is this fit for management advice, and has it been blessed by the SSC, what do you say? I don't know, and it just seems like there needs to be a motion which summarizes the recommendations somehow from this body, and we can't make a motion to say to refer to the report. I don't think that would do very well. Thank you.

CHAIRMAN NANCE: Do we have a motion on that specific thing? There are certainly aspects of this that are -- Just like I said in the past, I think there are aspects of this that we could utilize during the SEDAR process, and I'm not sure that anything has to be said, but, if there is a specific recommendation, I would sure like to hear that. It looks like silence from the SSC.

MR. MONCRIEF: Can I ask a question, real quick?

CHAIRMAN NANCE: Absolutely, Trevor.

MR. MONCRIEF: I guess I'm going to point this to Ryan. In your mind, do you think the council is looking for something from the SSC on this? I think we can pass a motion that says we acknowledge the findings from this study and agree that these structures hold importance to various stocks, specifically those of greater amberjack, which could warrant further discussion, or we could put in there that, as future assessments are completed, or the review process has taken place, these data should be made available, and I don't -- I am just not sure.

If there is a needed motion, then, by all means, I think we can craft one up that is fairly generalized, but, if there's not one that needs to happen, I'm pretty sure we're all in consensus that this is beneficial and these structures hold importance, and any work that moves forward should probably take into account the work that was completed already.

MR. RINDONE: That sounded pretty good.

CHAIRMAN NANCE: Trevor, if you could put together something along those lines, I think that would be an acceptable motion, for sure. While you're thinking about that, Doug, did you have a specific comment?

MR. GREGORY: Well, I agree with Trevor, and, along the lines that Ryan was kind of urging us on, I think we could say that this was a robust analysis of the impact of rig removal on various reef fish species, and the science involved in this study was acceptable. I think we might have some argument if we try to say it's the best available science, but it's certainly acceptable science, but, also, like Trevor kind of hinted at, I don't think the council is looking for any direction from us on this study specifically, but, with us saying that it's an acceptable scientific study, and it does provide the information on rig removal, we could do that.

MR. RINDONE: Mr. Chair, I don't think that there's any expectation of any declaration of BSIA or anything like that to come from this, because there is no management action that's expected from this. The council, in the past though, has been introduced with different things associated with rig removals, and especially explosive rig removals, from stakeholder groups and from other agencies, and the council has been asked to consider -- Once upon a time, we were asked to consider offshore petroleum platforms as artificial reefs, and that carried over several council meetings and ended up being quite hairy, for some of the reasons that some of the other SSC members have mentioned about conflicting agency responsibilities between NMFS and BOEM, et cetera.

I think something general to the council is not uninformative, and you guys don't have to make a motion. If you're inclined to make one, something generalized is certainly acceptable, if you're so inclined.

CHAIRMAN NANCE: Thank you. Will, to that point?

DR. PATTERSON: Well, I guess I thought that Trevor was kind of heading toward a motion there, but maybe I misread that, but the ideas expressed about platforms being important habitat -- There are a couple of places in the presentation where that idea was put forward, one in citing Ed Chesney's earlier work, and I think we have to be careful when we use the word "important", to actually specify what do we think it's important for, because, for red snapper, the results here, and the results of the Great Red Snapper Count, would argue that perhaps these habitats are relatively

unimportant for red snapper production, but they may be very important for access to red snapper biomass in certain regions.

We just need to be careful what we're talking about, in that respect, and the second thing is that, you know, if somebody made a motion that was specific to red snapper, then that might be something that we could discuss, but, for me, the amberjack data are too uncertain to make definitive statements one way or the other, and I think Harry kind of summarized that a few minutes ago, and that's kind of where I stand as well.

CHAIRMAN NANCE: Thank you. Trevor, anything?

MR. MONCRIEF: I sent a motion over, and I am friendly to any amendments whatsoever, and I tried to just put something forward that was just general, and I think it focused on the discussion that we had. There is -- That first statement highlights the importance of offshore oil platforms for reef fish species and directly contradicts the comment that Will just made, but I will be amenable to any changes to that language.

CHAIRMAN NANCE: Okay. Trevor has made this motion. I will read it. **The SSC acknowledges the work completed by LGL Associates that highlights the importance of offshore platforms for reef fish species in the northern Gulf of Mexico. The SSC agrees that future studies focusing on reef fish species, specifically greater amberjack, should take into account the information provided through this study, and future assessments should consider this data in the data review process.** Do I have a second for this motion?

MR. GREGORY: I will second it.

CHAIRMAN NANCE: Okay. Thank you, Doug. We have a motion on the table, offered by Trevor and seconded by Doug, and is there discussion? Ryan.

MR. RINDONE: Thank you, Mr. Chair. I guess it was going to be one thing, and now it's two things. **Based on Will's comment, and, if it's the SSC's pleasure, perhaps you guys would think about that word "importance" there and how that's defined, and perhaps, if this is as general as it reads, perhaps "importance" should be changed to "use" and so "highlights the use of offshore platforms for reef fish species", or something to that effect. Then the second thing I was going to note was, where it says, "take into account", just say "should account for". That's just a wordsmithing thing.**

CHAIRMAN NANCE: Bernie, why don't you go ahead and change it like Ryan said. Paul, please.

DR. MICKLE: Trevor, a friendly or a potential amendment for you to approve, I guess, is change "importance", or change "importance" to "potential impact", and I'm not sure that might be right, but I think it's headed in a better direction than "importance".

MR. MONCRIEF: I agree with you, Paul. I'm friendly to that one, and "potential impact of offshore platform removal for reef fish species", or something like that. I think that would tie it together, and that was what it was mainly focused on, and I think that would clear up the disparity between the conversations we've been having.

DR. MICKLE: To that point, I like that, because we take into account the review, and it's a new type of data, right, and we're looking at it from a different perspective, and, also, it's "potential impact for", and so it's all in there.

CHAIRMAN NANCE: Thank you. **I think the complete name would be LGL Ecological Research Associates, if we're going to put the whole name in there.**

DR. GALLAWAY: Research Associates, Inc.

CHAIRMAN NANCE: Thank you, Benny. Sean.

DR. POWERS: Two things. One, that second sentence I think is a little strong, and I don't agree with pointing out specifically greater amberjack, and I just think it should just be "examined", and it almost seems like we're telling them that it has to be included, and, I mean, I would prefer that something that more generic, to give the data workshop and SEDAR and the Science Center -- Just ask them to review it and consider it, and so we can wordsmith that second sentence, but, right now, that second sentence seems a little too strong, to me. It seems to be directing them to include it.

CHAIRMAN NANCE: Sean, how would you wordsmith that one?

DR. POWERS: I would say the SSC encourages SEDAR, and/or NMFS, to examine the results of the study in the appropriate reef fish stock assessment. The SSC encourages SEDAR and NMFS to examine this in the context of upcoming reef fish stock assessments.

CHAIRMAN NANCE: I think you're talking about the second sentence, aren't you, Sean?

DR. POWERS: Yes.

CHAIRMAN NANCE: Bernie, this first sentence is fine, and then, where the SSC -- Go ahead, Sean, please.

DR. POWERS: The SSC encourages SEDAR and NMFS to examine the results of the study in the context of upcoming reef fish stock assessments.

CHAIRMAN NANCE: Thank you. Go ahead and delete the rest of that sentence then, Bernie.

DR. POWERS: Well, if Trevor agrees, yes.

CHAIRMAN NANCE: Okay. Sean, go ahead, please.

DR. POWERS: I said if Trevor agrees to delete the rest of it.

CHAIRMAN NANCE: Yes. Trevor, how does that look for you and for Doug?

MR. MONCRIEF: I am friendly to it. I think that's kind of the gist of what I was trying to get, and I wasn't trying to assign any prescriptive --

CHAIRMAN NANCE: Thank you. Doug, any issue with that?

MR. GREGORY: No, not at all.

CHAIRMAN NANCE: Thank you, sir.

DR. POWERS: I had a second point, Jim, and that is maybe Benny knows, or one of the NMFS analysts, but do we have a sense of how these numbers compare to the previous analysis? Like Roy and Will and others have said, NMFS has done these analyses before on removal, and is this number very different, at least in the case of red snapper, or is it consistent?

CHAIRMAN NANCE: From my remembrance, for red snapper, this is in line with what has been used in the past.

MR. RINDONE: That is correct, Dr. Nance. It's not indifferent, and so, I mean, there have been varying estimates to the impact of explosive removals for red snapper. Previously, going back to SEDAR 31, is when they took a larger look at this, and so one of our previous GIS analysts, Mark Mueller, went through and catalogued all of the artificial structures known in the Gulf of

Mexico, including offshore petroleum platforms, and the total footprint of all artificial platforms throughout what was considered essential fish habitat for red snapper I think was like 1 percent, or less than 1 percent, of the total available habitat, based on that analysis, and you guys can dig that right off the SEDAR website, and it's on there under those reference documents. Based off of that, and other information, the general effect of these explosive rig removals was found, in SEDAR 31, to be annually negligible.

DR. POWERS: I guess, Ryan, it wasn't the number of red snapper that were killed, and I understand the whole scenario of whether this number is anything different, largely different, from the number used by the current assessment.

DR. GALLAWAY: To that point, if you're looking at the same depth zone and region, the numbers are quite similar. They differ -- We have numbers for areas that have not been included in previous studies, but, overall, I agree with what everyone is saying. On a population basis for red snapper, the numbers are what they are, which is 4 or 5 percent.

CHAIRMAN NANCE: Thank you. John, to that point, please?

DR. JOHN WALTER: Thank you, Mr. Chair. The only thing that I wanted to say is one of the big concerns about -- Previously, when the calculations for the number of red snapper were divided by the stock assessment numbers, the stock assessment said there were a lot fewer fish out there, and repeated applications of the stock assessment, due to more informed estimates of natural mortality, the total population size increased pretty substantially over time, as estimated by the assessment.

That's why, when you divide similar numbers by a much larger one, the impact on the population is now seen to be less than the concern that was raised a number of years ago, or many years ago, and Benny is pretty familiar with that, because he did those calculations years ago and then updated them with the new assessment numbers. Thanks.

CHAIRMAN NANCE: Thank you, John.

DR. GALLAWAY: To that point, that's exactly right, and that's a very good point.

CHAIRMAN NANCE: Thank you. Jason, please.

MR. ADRIANCE: Thank you, Mr. Chair. I am not against the motion,

but I'm just not sure if it's needed. I mean, we've had -- This was brought up, and we've had this robust discussion, and this is part of the body of work that's out there, and I'm sure that it will be looked at in SEDARs, and so maybe that puts me in an abstention camp, but I just -- I think it's hard to put this discussion in a motion, since there is not a specific piece of management advice being asked from this, and that's just my thoughts on it.

CHAIRMAN NANCE: Thank you for that, and I think the generic nature of the motion kind of speaks to that, but thank you for that input. Mandy, please.

DR. KARNAUSKAS: Thanks, Mr. Chair. I am not opposed to this motion, but I think, if we're going to highlight the potential impact of platform removals, we should also acknowledge the potential impact of leaving the platforms in. As Roy and others brought up earlier, there is implications of increased CPUE, and potentially shorter season lengths, and so we might want to acknowledge those.

I was okay with the word "importance", as long as we acknowledge what that means, to Will's point earlier, and so I can try and throw out a friendly amendment. **Perhaps we could say "potential importance regarding population dynamics and fishing opportunities".** I'm okay with the rest of the motion. Thank you.

CHAIRMAN NANCE: Mandy, can you -- You need to kind of say it again, so Bernie has an opportunity to fix it.

DR. KARNAUSKAS: Sorry. **That highlights the potential importance regarding population dynamics and fishing opportunities. I would remove impact and the platform removal.**

CHAIRMAN NANCE: Well, we need to keep offshore platform, right?

DR. KARNAUSKAS: Sorry. **Potential importance of platforms.**

CHAIRMAN NANCE: So "removal" would be taken out. **The way it reads now is the SSC acknowledges the work completed by LGL Ecological Research Associates, Inc. that highlights the potential importance regarding population dynamics and fishing opportunities of offshore oil platforms for reef fish species in the northern Gulf of Mexico. The SSC encourages SEDAR and the National Marine Fisheries Service to examine the results of the study in the context of upcoming reef fish stock assessments.** Thank you, Mandy, for that. Jim.

DR. TOLAN: Thank you, Mr. Chair. I am just trying to wrap my head about the -- It's certainly very different, right now, than it was when I first put my hand up, and it's really a very dynamic motion, but the point that I was going to bring up, and I think it was covered pretty well by the back-and-forth between Ryan and Sean, in that, on a larger scale, population levels -- The impacts of -- I think it's in the report that says it's really not that big of a deal on a yearly basis, and so I'm just curious what the need for -- What's the why for this motion? Thank you.

CHAIRMAN NANCE: Thank you, Jim. While we target in on red snapper, for sure, there are other reef fish species out there that are also impacted, some greater and some less than, for each one of those things. Will.

DR. PATTERSON: The way this is currently written, it says "that highlights the potential importance", and so, when you say "highlights", that seems to add like, in part, that it's stressing the positive importance, and so I would be more comfortable if it said, "that examined the potential importance of platforms with respect to population dynamics and fishing opportunities", instead of "highlights". "Highlights" seems like you're stressing that there is this positive, when, for most species, it was shown to be rather benign, the removal, and then perhaps, for amberjack -- I mean, for amberjack, the greatest impact was shown, but probably the highest uncertainty among the species examined.

CHAIRMAN NANCE: I like that word change. Roy.

DR. CRABTREE: I agree with the changes Mandy and Will just made to the motion, and I am much more comfortable with it now.

CHAIRMAN NANCE: Thank you. Trevor. You have a great motion here, man.

MR. MONCRIEF: It's turning into something, I'll tell you that. I mean, for me, I think there is a pretty good disparity of opinions across the board, and I think they've been highlighted by this discussion. To me, the changes that were made to the motion on this last iteration -- To me, it kind of gets away from what the focus of the study actually was.

The study was looking at the impact of the removals, and it wasn't looking at the fishing opportunities or anything else like that, and I'm pretty sure -- To me, I liked the way it read prior. Now, as I said, I am friendly to amendments and everything else that the group wants to make, and I probably, to be honest with you, wouldn't support the motion as it is right now, and then the

conversations that have been had really highlight the disparity, or the diversity, in the thought process behind the different SSC members across-the-board.

CHAIRMAN NANCE: So I guess the -- Trevor, you can remove the amendment, I guess.

MR. MONCRIEF: In my mind, I think the way it was written prior reflects more of what the study was focused on, and not necessarily our interpretation. I mean, we're focusing on the work that was completed, and how it is informative, and what that work focused on, and so that's my opinion on it.

CHAIRMAN NANCE: I guess my question to you is do we want to move forward with this motion as it is, or would you want to take the motion off the table? Even if you vote against it -- I mean, Bob Gill used to do that all the time.

MR. MONCRIEF: I understand that, but I guess, yes, I would probably be more in favor of just withdrawing the motion as it is right now and let the record show all the different thought processes behind everyone, and it's just gotten a little bit too complicated for something that should be so general.

CHAIRMAN NANCE: Okay. Any other motions? My personal feeling is I like the motion, but I think it gives us the sense of what we talked about. We've had a great discussion, and I appreciate that discussion, and I think this motion captures that. If someone would like to just reinstate this motion, I would be open to that. Let's see. Will. Your hand may be still up, and I don't know.

DR. PATTERSON: Sorry. I didn't put it down.

CHAIRMAN NANCE: That's okay. Paul.

DR. MICKLE: Real quickly, and I kind of wanted to wait until after the vote, I guess, but, just as a friendly suggestion in the future, there was two amendments made, separately, by two different people, and neither person asked if Trevor would take the amendment, and they were just stuck into the motion, and then we got to a point where Trevor didn't like the motion at all, and so maybe, in the future, if we could just follow a little bit of a procedure, where, if an amendment is made, it's asked of the motion maker, so we don't get too far down the road and lose an entire motion.

CHAIRMAN NANCE: Okay. Thank you, and I thought I had been doing that, but maybe I didn't do it on that last part. I appreciate

that, Paul. Any other motions to be made by the group? Okay. I appreciate the discussion, and I think it was a very lively discussion on this topic, and I appreciate that. It's almost quarter after eleven in Tampa, isn't it, and so let's take maybe a five-minute break, and we'll come back at -- Let's come back at 11:25, Eastern Standard Time.

MR. RINDONE: Will do.

(Whereupon, a brief recess was taken.)

CHAIRMAN NANCE: Okay. I think we can go ahead and resume. Just, I guess, let me ask, and, Mandy and Brendan, would you be able to give your presentation before lunch, as opposed to after?

DR. KARNAUSKAS: Brendan was going to give the presentation, and so I think he's online, if you could unmute him.

CHAIRMAN NANCE: Okay. First, I'm going to have Ryan talk a little bit about the yellowtail snapper. We'll give Ryan about five minutes for that, and then if we can have Number VIII, which is Review of Spatial Coverage of the 2020 and 2021 Red Tide for the West Florida Shelf after that, and then we can break for lunch after that presentation, if that's okay with you guys.

MR. RINDONE: Mandy and Brendan, are you all good with that?

DR. BRENDAN TURLEY: I'm good with that.

CHAIRMAN NANCE: Okay. perfect. Thank you. Ryan, I will go ahead and turn the time over to you, and then we'll turn the time over to --

DISCUSSION ON YELLOWTAIL SNAPPER

MR. RINDONE: All right. I'll bang this out real quick. The Gulf and South Atlantic Councils are working on Snapper Grouper 44 and Reef Fish Amendment 55, which is a joint amendment between both councils for their Snapper Grouper and Reef Fish FMPs for yellowtail snapper, and it's in response to the SEDAR 64 stock assessment that found yellowtail to be nice and healthy.

It also included recreational catch and effort data from MRIP-FES. One of the issues is that there was a -- The SSC has evaluated all of this, and they recommended an OFL and ABC for yellowtail back in October of, I believe, 2020, and, anyway, there's been delayed action on yellowtail, because the councils were both waiting on calibration ratios to be developed by the NOAA Office of Science

and Technology for all recreationally-harvested species, and that took a little bit longer than was anticipated, and so that delayed council action.

The councils had waited until all of that was done, and we're at that point now, and we are looking at not being -- Not logically expecting to be able to implement any management action from this joint amendment until probably the start of the 2023 fishing year, which starts in August, and so, at that point, the projections that were recommended by both councils' SSCs would be six years old, and, as you guys have stated numerous times, you don't recommend using projections that are older than five years for management, if at all possible, and the South Atlantic has recommended the same.

Since we would be starting management when these projections are six years old, the South Atlantic Council has requested that the Florida Fish and Wildlife Research Institute, which was the analytical agency for SEDAR 64, update the assessment with data through 2020, to ensure that subsequent actions considered by the councils are using the most recent data available. The Gulf Council will consider the same at its January meeting at the end of this month. That's it.

CHAIRMAN NANCE: Thank you very much. Then so we'll go ahead and move into Item Number VIII, and, Ryan, could you take us through the scope of work for that, and then we'll turn it over to our presenters?

REVIEW SPATIAL COVERAGE AND SEVERITY OF THE 2020/2021 RED TIDE ON THE WEST FLORIDA SHELF

MR. RINDONE: Sure. Dr. Brendan Turley is with us from the University of Miami, and he's been working with Mandy Karnauskas, who is on our Ecosystem SSC, and the NOAA Atlantic Oceanographic and Meteorological Laboratory, to characterize the spatial coverage and severity of the 2020 and 2021 red tide harmful algal bloom on the West Florida Shelf.

They've been working with fishermen and the FWC to collect the data necessary to characterize the extent and effects of this red tide bloom, and so Brendan is going to talk to you guys about observations analyses that his team has put together and compare those with some of the estimates from Dave Chagaris, who is on our Standing SSC, from his Ecospace model, which estimates commensurate metrics of coverage and severity for this particular red tide event. You guys should just take a look at the material, as presented, and provide any recommendations, as appropriate.

Brendan.

CHAIRMAN NANCE: Thank you.

DR. TURLEY: Thank you, all, for giving me the opportunity to speak to you today. That gave a good overview, and I will say that, when I first gave Ryan the materials, I think we had talked about presenting some of Dave's work, but, considering that he's on the committee, I thought that I would give him the chance to speak for his own work, and so this will be -- It will reference what he's done, but I am not going to present anything that he has presented before, and so that's it, and I'm going to give a brief overview of the red tide that occurred last year and continuing from 2020. My co-authors are Mandy, who is on the committee, but also Chris Kelble, who is at the Atlantic Oceanographic and Meteorological Laboratory.

I will first start off with some acknowledgement of our fishermen collaborators at Florida Commercial Watermen's Conservation, and Casey, John, and Jay have been instrumental in collecting some data. Then some people at NOAA AMOL, the NOAA Pascagoula white ship crew, and the scientists and volunteers are instrumental, and, also, the Walton Smith, out of the University of Miami, has been quite helpful at collecting the data, and, of course, people with the State of Florida have been quite instrumental in this work, and, Dave, thank you so much.

I have three basic takeaways. I am not going to give any sort of recommendations, but there are three things that I think are most important. One, this assessment is pretty consistent with Chagaris's ecosystem model that he presented in September and in December, and, two, there is limited sub-surface data.

However, the mid-shelf show there are no anomalous conditions that might be of concern for species that live out there, and then, three, we did see some localized hypoxia off of southwest Florida, around the Sanibel Harbor region, and that persisted from August through October, and this is consistent with what we've seen in previous HAB-hypoxia events, where the harmful algal bloom initiated earlier in the year and persisted over the summer, and I will talk more about that.

What do we know? 2020 was a very quiet year, and so these two figures show the data from the FWC, from January to October on the first left-hand plot, showing that there really wasn't a whole lot of activity, and then the right-hand plot, in November and December, there was an outbreak, essentially, in southwest Florida, which is kind of unusual, because blooms usually die down

in the early winter, with the passage of cold fronts, and we did not see that in 2020, and it kind of set the stage for what happened last year, in 2021.

Kind of just going down the timeline of events, I think it's important just to kind of put things in order, to kind of provide some context of what happened, and I know we all lived it very viscerally, but it's good to kind of review it. In March and April, the blooms crept up towards Tampa Bay from the Charlotte Harbor area, and then, in late March and early April, there was the Piney Point discharge into Tampa Bay, and pretty immediately, from satellite and water samples taken in the area, we could see that there are some diatom blooms, and then, by June, there are high concentrations of Karenia brevis in Tampa Bay, which, from a historical standpoint, was pretty unprecedented.

Up to this point in the year, and this bloom, we really hadn't had much mid-shelf sub-surface data to put in the context of what might be happening on the ecosystem level in connection with this red tide.

This is going to be a little introduction to some of the data, some of the data that we used to help characterize the sub-surface conditions, and so there has been this ongoing collaboration between the Florida Commercial Watermen's Conservation non-profit, based out of Matlacha, since 2018, and it's a volunteer-based water quality sampling program, and it was in response to the 2018 bad red tide.

There are four handheld units that fishermen will take out when they're fishing, and they will sample the sub-surface and give us a profile of different water quality parameters, and this data, all the data they've collected so far, can be seen online, at this link, if anyone is interested in looking at it.

In late July and August, a fisherman, a bottom longliner, specifically, agreed to take a sampling device and run up the coast, and this plot is just -- All the orange circles are where he stopped to take samples. He zig-zagged up the coast and then shot out to the shelf break and then worked his way down the shelf, and the segments are just how we plotted it out, and it will be more relevant on the next slide, but the observations are that there weren't any fish kills in any of the trap lines. There is pretty good blue water off of St. Pete, and the water offshore looked great.

Fishing was great, and the reason that I mention this is because we've found that this local ecological knowledge is pretty

important to understand the effects of red tide, because, absent continuous monitoring of the offshore environment, we really are kind of blind to what's going on, and so we obviously -- We think this information is important, but it also comes with its own set of caveats, too.

Corresponding to that red circle on the far right-hand side, that's just the closest line inshore of the sampling that that fisherman sampled for us, and what the plots are -- They're the same location data, from latitude on the bottom and depth on the Y-axis, and you see there is temperature, salinity, chlorophyll, and dissolved oxygen, and this just gives us an idea of what is going on sub-surface.

Things that we tend to look for particularly is dissolved oxygen, and we're really looking for any sort of hypoxia that might be occurring, and, in this plot specifically, there was nothing that was really concerning, and, also, I'm not going to show the other plots, because there wasn't anything really -- There was nothing unusual that was seen, but this just gives you some of the idea of the data that we're taking into consideration when we're looking at the ecosystem perspective.

To add to that, we're starting to ingest more data, and so, as you all are probably aware, NOAA and NMFS does several cruises at different times during the year, and they take environmental data, and they have allowed us to start to, in real time, or near real time, ingest this data, and so this data is from the bottom longline cruise on August 25 through September 8, and this is just showing the bottom contour of the data for temperature, salinity, chlorophyll, and dissolved oxygen, and so these are the same parameters that we were looking at at the previous plots.

Again, there is not anything really that concerning that pops out to us, and there is no hypoxia, which is great, and we're happy to see that, because we were concerned, with the prolonged nature of this bloom, that there might be some hypoxia developing. However, I will say that the survey coverage does not extend near-shore, and it's kind of blind spot for these cruises specifically, in this context, but the collaboration with FWCC helps fill in that blind spot, and also another cruise that I will talk about here shortly.

That other cruise I was referring to are quarterly cruises by AMOL on the R/V Walton Smith, and they sample the same stations in the Florida Keys and Florida Bay, and it's pretty recently started to do more up the coast in response to these red tides, and what they found, in August, on the left-hand plot, is some hypoxia, and so

this is a contour of the bottom dissolved oxygen, and so hypoxia is really low oxygen, and it's a concern for us, because it indicates there is stress to the bottom communities, and that red portion of the plot on the left and the right shows developing hypoxia, and so we saw it in August, and then we also saw it in October, suggesting that it persisted for at least three months, which is very concerning.

Also concerning about this is this was around the time of stone crab season opening on October 15, and, since 2018, these cruises are starting to be timed to give us some indication, pre-opening of the stone crab season, of what might be going on in that area.

To add to that, our fishermen collaborators were sampling, and that's the region they typically sample, and one fishermen went out to the same area that the Walton Smith found and also identified hypoxia, and you can see that on the bottom right-hand plot. The red area is some hypoxia that has probably persisted since August, and this information was provided to the industry. However, it had a very limited distribution, and that's something that we're taking as a learning point and trying to expand upon, is that there are various institutions and organizations that are collecting environmental data that could be of use to not only the industry, but also managers and bodies like this, for example, and this information provides some environmental context of what's going on that might be affecting indices of abundance or even stock assessments.

Continuing on through the year, I think this slide is important, because Dave's work stopped in -- I mean, it didn't stop, but the stuff he presented ends kind of in August, because that's the important season for species he's interested in, but, looking at the rest of the year, we found that, in September and October, the bloom really spread out, up into the Panhandle, and so the plots that we're looking at, the three plots, are August, September, and October, and this is a method that's similar to what Dave uses to identify Karenia brevis for use in his ecosystem model.

Anything that looks like it's on fire is kind of flagged as potentially red tide, and so you see, in August, it's pretty diffuse throughout the west coast of Florida, in that top left-hand plot, and then, in September, the top right-hand plot, it starts to spread and move towards the Panhandle, and then, in October, you really see that it looks like it's on fire, and that is supported by the data by the State of Florida, that bottom right-hand plot, where all the red and orange and yellow is, and that's areas of high Karenia brevis cell concentrations.

Like I had previously mentioned, we saw that there was hypoxia in southwest Florida pretty near to shore, and the local ecological knowledge from fishermen, particularly with stone crab fishermen, is there was reports of dead bottom, and so like bacterial mats, and just it didn't look healthy, and a lot of the -- Several stone crab fishermen reported going bust, and they just didn't find any stone crabs in that area, and so it really was impactful to them, and to the ecosystem more generally, in that region.

Then, by December, the bloom activity has pretty much disappeared, and the hypoxia had also abated, and so it persisted for a while, but it eventually did disappear.

We're really concerned about hypoxia with these red tides because, from nearly twenty years of data, we have found that hypoxia tends to form with red tides when they persist over summer, and so a good example is 2005 was a really bad red tide, and there was quite a bit of hypoxia. 2014 is not as well known by more broadly as a bad year, and fishermen -- A lot of fishermen in the area know it, because they saw the first-hand experience of it, but there is a very large and persistent bit of hypoxia, and you can see that in the plots on the top right-hand and the bottom left-hand. Those are August and September plots of bottom oxygen contours, and the orange bubbles are Karenia brevis cell concentrations, and you can see that, really near where we were seeing the Karenia brevis, there was this hypoxic zone, that red kind of splotch.

Also, in 2018, we saw persistent hypoxia in the southwest Florida region that appeared, similar to this year, around August and persisted through November, and so there's really these two areas that we're most concerned about hypoxia forming, and that's the Big Bend region and near Sanibel Island. It's something that we're continuing to work on.

To kind of wrap it up, in the future plans of what we're working on, we would like to expand our fishermen water quality monitoring program, because it really provides a valuable set of eyes on the water between research cruises. We have an online dashboard that shows these environmental conditions, and it would be nice to update that, including additional NOAA data, and also the data from the state.

We're also working on improved red tide tracking for satellites, to be used in stock assessments, and hypoxia is definitely a priority area for us. We would eventually like to get to a seasonal hypoxia forecast, and we're working to expand our capacity in that fashion. Finally, and I think this is also critically important, is we really want to refine our communications strategy to inform

the fishermen beyond the grapevine.

It seems that rumor and hearsay spreads when you don't want it to, but, even when you want it to, it doesn't happen, and so it's something that is a challenge for us, but it's also a priority too, and so I'm hopeful that we can solve that problem.

I will just end with the three take-aways, and, one, this assessment is consistent with what Dave had presented previously, and, two, that there was limited sub-surface data from the mid-shelf, and it didn't really show any sort of anomalous conditions that might be of concern. However, there was some localized hypoxia off of southwest Florida that persisted for nearly three months, and this is consistent with previous HAB-hypoxia events, and it's a concern, but it's also an area of priority for us to continue working on. With that, I am happy to take any questions or comments.

CHAIRMAN NANCE: Thank you very much for that excellent presentation. Are there questions or comments? Paul, please.

DR. MICKLE: Thank you, Mr. Chair. I appreciate the presentation from all of you all, and it was very informative, and I enjoyed reviewing this as well, prior to the meeting, and you may have already thought of a couple of these things that I'm about to talk about, but, just in case you haven't, just some ideas of maybe some useful tools that can come out of your work in the future, and, again, you had a few of them on your second-to-last slide.

Have you thought of like looking at some of the datasets, the LIDAR datasets, R set data, surface temperature, or even wind and rainfall, localized rainfall, regional rainfall, riverine discharges, things like that, and kind of what I'm getting at is kind of forecasting capabilities, right, and so I think that would be probably one of the most useful tools that could come out of this down the road, from a management perspective.

Looking at getting as much of the data as you possibly can from everybody, including the groundtruthing, and I'm calling it groundtruthing, cruises, and things like that could be fed it, and then you could run a very simple PCA, a principal components analysis, and we did this in Mississippi, looking at it, and it's either a two-dimensional or a three-dimensional, depending on how much variance is carried through each component, and you have all the data, and you throw everything in it, with the kitchen sink, and PCA's purpose on this earth is to reduce data down and show you what is potentially driving separation in a two or three-dimensional space.

Then it kind of tells you which parameters can maybe be driving and heading toward a potential condition in which a bloom could occur, and then you have to understand that relationship with hypoxia, which is a different animal, but, again, it’s really interesting, and when you have your PCA working in real time, and you’re feeding it data, and, when the dots are kind of heading toward where you used to have blooms, or historical blooms, you can throw flags up in the Gulf of Mexico when certain spatial areas are heading toward favorable conditions, and there you have a quantitative forecasting type of model, so to speak. It's just ideas, but, again, they respond by such a good presentation and such good science, and I really do appreciate it, and those are just my thoughts. Thank you.

DR. TURLEY: Sure. Thank you for that comment. It’s definitely an active area of research that is coming out of some of the work we’ve been doing, and, I mean, the holy grail would definitely be a seasonal forecast, but, at the moment, there’s some groundwork that needs to be covered before we get there, and there’s still a lot of unknowns, and Karenia brevis blooms on the West Florida Shelf are still kind of inscrutable, but I do appreciate all the comments. Thank you.

CHAIRMAN NANCE: Thank you very much. David.

DR. CHAGARIS: Thank you. First, I just want to say great job to Brendan, and also to Mandy for this cooperative research program that they have really put together and nurtured over several years now, and I think we can all see the value of this added data, as far as providing a pretty comprehensive description of what’s happening.

Then just a point of clarification. In the presentation, you mentioned that the ecosystem model was run through August, but we did update the run with data through October, and those were presented at the November SSC meeting, when we reviewed the gag catch projections, and so we did include that time period, where it expanded into the Big Bend and the Panhandle region.

Then, just so the group knows, with the ecosystem model, we have not included any hypoxia or dissolved oxygen layers into that, and so that could potentially be a bias in our estimated impacts of red tide, where they were estimating -- It’s underestimating the effort of red tide, and we potentially see that with the 2014 bloom, when we compared the model biomass lost with the biomass lost in the bottom longline survey of that same year.

What Brendan's slide showed was that, while the red tide bloom may have dissipated after about July, there was still some red tide present, but it was most severe, I believe, in July and early August, but the low dissolved oxygen condition did persist in that area, and so I think that's why it's important, for us moving forward, and I say us as far as our ecosystem modeling efforts, to try to incorporate more dissolved oxygen information into the models.

When we tried to do that earlier on, we just had to make some -- As you saw, we don't have complete maps, and what the model really needs are monthly synoptic maps over the full spatial grid, and there's a lot of missing areas, especially nearshore, and a lot of missing months and years of data, and so we got to the point where we just had to make so many assumptions to do that that it just wasn't informative, and so that's the main reason why we weren't able to include this information into the red tide scenarios of the ecosystem model, but I believe that we can eventually get there, especially as they continue to build their cooperative network and pull in more data sources, and so that was all I wanted to say. I don't have any questions or comments, other than great presentation.

CHAIRMAN NANCE: Thank you. Brendan, did you want to go ahead?

DR. TURLEY: I just wanted to say thanks, Dave, and that's why I didn't want to present your work, because I figured that I would misrepresent it in some limited capacity, but thanks for the clarification.

CHAIRMAN NANCE: Thank you. Luiz, go ahead.

DR. BARBIERI: Thank you, Mr. Chairman. Brendan, thank you for that great presentation, and I will echo Dave's comments there. Kudos to you and Mandy and others that are moving forward with this initiative, and I think this is a great way forward, the direction of integrating more of these ecosystem components into the way that we assess and manage fisheries, and it's very good.

One of my question, I think, more or less, Dave already addressed, and it was what's the potential of integrating these results, or perhaps this program that you guys have, more explicitly into the work, the model, that Dave has been using, and so align the programs so that you're working together in developing the data for the ecosystem model. Brendan, just out of curiosity, and is this something that you guys have been thinking about, and, Dave, I don't even know if this something that you have kind of an interest in pursuing, but I was just curious about it, because

they seem to align very well.

DR. TURLEY: That's a great question, and, actually, the work that Dave was talking about trying to integrate hypoxia, I was providing the maps of the dissolved oxygen to force into his model, and Dave did a great job of talking about the work, and I think that we could potentially work on trying to integrate it better, but that remains to be seen, and there's always things to be done, and so that's a great idea, and I definitely agree with that, that inclination.

DR. BARBIERI: Thank you. I agree completely. Now, my second question is -- I mean, when we're looking at this from the perspective of fisheries management, and you alluded to that, to some extent, in terms of warning to fishermen or integrating this more with fishing activities in different areas by different fishermen, and are you thinking about this more on a real-time sort of way, meaning you are identifying those trends, or data, that are coming in, and you kind of work almost real-time with the fishermen to adjust areas that they are fishing, where, or are you thinking about a longer-term kind of process, where you develop sort of like a risk assessment perspective of these areas and the likelihood of different areas having a higher occurrence, or a higher severity, of these events, so we can actually integrate this more with the fisheries management in those areas?

DR. TURLEY: My answer is, yes, both. I consider these separate but related issues, and one is that kind of my vision would be for us to kind of have an aspect that's kind of like the Weather Service, and we're saying this is a warning, a real-time threat, that can be used, and we don't want to say this will happen, but there is an increased likelihood that it will occur, or we are seeing it, and so like bulletins in real-time can provide the industry with information that they can use however they see fit, and we don't want to tell them what to do with it, but, if this information was of value to them, we definitely think it's worth getting out to them.

Then, two, yes, on a seasonal scale, that's essentially what I think you're referring to, and that's identifying areas, like we've already identified, that hypoxia is likely to occur during certain situations, and so they're two things that I think are important and that we are working towards, for sure.

DR. BARBIERI: Yes. Excellent. Thank you, Brendan. I appreciate it.

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

DR. TOLAN: Thank you, Mr. Chairman. I will echo the rest of the SSC members and thank you for a very nice presentation. My only comment would be, if you do come up with a nice working real-time forecast model, please send me a copy of it, because, here on the Texas coast, I expect that about the same latitude that you guys are, on the lower Texas coast, every September and October, I sit there with my fingers crossed hoping that we don't have another red tide, because we've had some real doozies in the last few decades, and they seem to be getting more frequent, and it would be really nice to have some forecasting ability, but thanks again for that presentation.

DR. TURLEY: I like that inclination, and Texas is a different beast, and we haven't been focused on that area so much, and I think any sort of forecast ability that we would develop would be very specific to Florida, unless we're collaborating with people in Texas, because that's been our main focus, and so, if you have any contacts of people who are working on that in Texas, please feel free to reach out to me.

DR. TOLAN: To that point, Mr. Chairman?

CHAIRMAN NANCE: Yes, please.

DR. TOLAN: There's a network here in Texas that does our HAB monitoring, and it's along the same lines of what you do, the satellite information and the water quality on the coast, and even citizen scientists can take water samples. I will only add one thing that you may or may not have thought of to look into, and I know it's a pretty prevalent thing when we get red tides here on the Texas coast, and that's middle of summer upwelling, and, when we get temperatures along the beachfront that drop below seventy-five degrees Fahrenheit, that's a pretty big indication that we're going to have a following September or October.

I've looked at a bunch of water data, and it goes back for a number of years and that seventy-five-degree upwelling sort of threshold is pretty consistent, and so I don't know if you've looked at the upwelling index or not. Thank you.

DR. TURLEY: I will just quickly -- That also occurs on Florida's coast and work by Rick Stumpf of NOAA has shown this, but also work by Bob Weisberg out of USF also, and that shows similar relationships. Thank you for the comment.

CHAIRMAN NANCE: Thank you. Harry, please.

MR. BLANCHET: First, I just wanted to really congratulate the researchers on developing this volunteer-based organization. The quality of information seems to be pretty impressive, and I don't know if there is something that this body can do to help give that group some recognition or thanks or appreciation for their volunteering and their providing what they have.

Obviously, because this is volunteer, this is always a heavy lift in developing and in maintaining that cadre of people to go out and do the work, when it's taking away from their own time making money, and it's a difficult job.

To me, one of the places that has not been mentioned yet, Doug, is Sea Grant, as an organization that could have a role in helping to support this type of project, and I don't know the capacity of that local group over there, but this seems like something that could be done by a couple of Sea Grant agents, as part of their program, to really help support these guys and help maybe get a few more profiles and some methods of just improving the frequency of the data.

I really like the progress that has been made, and I recognize the amount of effort that it takes to get something like this started, and what can we possibly do to help improve that, because the quality of information, and certainly the -- At the price, it's hard to beat. Thank you.

CHAIRMAN NANCE: Thanks, Harry. Go ahead, Brendan.

DR. TURLEY: I was just going to say thank you for the comment. For the price, considering what it takes to crew a standard research vessel, this is a bargain, and the Gulf would -- It would be tremendous if we could get these programs expanded in the Gulf, because the South Atlantic and the Northeast have running citizen science, but also cooperative research programs that do very similar roles, and I think they're immensely valuable, and so I would champion expanding this capacity in any way possible, for sure.

CHAIRMAN NANCE: Any other comments by the SSC?

MR. GREGORY: Mr. Chair, can I just respond to what Harry said? Florida Sea Grant is already involved with the stone crab industry in various ways. One, they have helped organize and are working with an advisory committee through the State of Florida, and they've been working with Dave Chagaris on an outreach program that he's been doing with stone crab, and so I think it would be easy to expand that involvement, if need be, and they're already

helping, for the last two or three years, and that's good.

CHAIRMAN NANCE: Thank you. Dave, to that point?

DR. CHAGARIS: To that point, definitely your county Sea Grant agents are boots on the ground that we should absolutely leverage, and, through that stone crab project that Doug mentioned, folks from -- The agents in Collier County and Marathon and Monroe County have been making those connections already, and so I can get you in touch with those people, Brendan.

I do have a question for you, Brendan. Are these fishermen -- When they're collecting the water quality data, are they also recording -- Are they setting gear, or are they recording anything about the fish or other components of the ecosystem?

DR. TURLEY: No, as of now, they are not. It's something we had talked about moving into, but it hasn't gained any traction thus far, and so, I mean, I will say, on a sort of logistical sort of side of this, the program has struggled, because of there is no real funding for it, and so it's all volunteer-based, and that has its limitations, and so there is only so much we can collect, given how much they want to provide to us, and we don't want to push it, so to speak.

DR. CHAGARIS: Thank you.

CHAIRMAN NANCE: Thank you. Will.

DR. PATTERSON: I am amazed at the level of cooperation here and the amount of data being collected that otherwise would be really, really tough to get, and a day on a ship like the Hogarth, the smaller of the two FIO vessels, is like ten-grand a day, plus you have to pay for personnel, and, in my lab, and I know for other folks on the panel here, they do quite a bit of cooperative research with for-hire and recreational, private recreational, and commercial fishers, but this is great example of cooperative research.

I noticed, on the Florida Commercial Watermen's Conservation website, they indicate that the test kits cost about eight-grand apiece, and so I'm wondering -- I see John is up next, and maybe he has some information here, or maybe Mandy can address it, but I wonder what the limiting factor to getting more folks involved in this particular program, which, when red tide is occurring, it's critical to get information, and FWC only has so many resources, and other folks that are out sampling on the water only have so many resources to devote to mobilizing to go get data, but

commercial watermen, for-hire, recreational, captains that are on the water every day, and they are stewards of the resource, and this is where they derive their livelihood.

If the limiting factor is test kits, it seems like eight-grand a kit should be pretty easy to come up with, and I'm wondering if there is a group of folks that need kits that don't have them, and so what are the limiting factors here for providing the ability for this to grow even more?

DR. TURLEY: I can speak to that, and so something that we've encountered is -- One is that you have the equipment, but it also requires maintenance and calibration, and so it's more than just having a kit on the boat. Having one, and also maintaining it properly, is also critical to getting quality data out of it too, and so that's something to consider. Having either a group of volunteers, or a core group of people responsible, relatively skilled people, and it doesn't take a ton of skill, but it does take some attention to detail to maintain and calibrate these sensors.

CHAIRMAN NANCE: Mandy, did you have a comment to that point?

DR. KARNAUSKAS: I wanted to invite -- Part of the acknowledgement here goes to Casey Streeter, who started this organization, and I believe he's online, and so I wanted to ask if we could unmute him, in case he had any thoughts on sort of the hurdles that we face here.

CHAIRMAN NANCE: While Casey is getting his stuff all figured out, John, let's go ahead to your comment.

DR. WALTER: Okay. Thank you, Chair. This brings up something, and I am listening to what people are saying here, and something has come to mind. If we could reduce the scientific uncertainty, we could fish closer to the OFL, and the buffer between the ABC and the OFL would be less, and red grouper is one of those species for whom the uncertainty in what a recent red tide has done is one of the key uncertainties in what the catch advice is going to need to be.

I remember us trying to parameterize projections based on assumptions, but, if we could get that information within one year of advance, through these kind of programs, we should be able to chip away pretty substantially at that uncertainty, which would allow for fishing closer to the overfishing limit, which would translate to more fish to the fishery.

In some -- What it might allow for is some sort of research set-aside that would allow and fund the research needed to achieve that scientific certainty, and so I know that funding is tight for everybody, and I really respect all of the hard work that the fishermen have put into this, but I don't want anyone to have to work for free, because it's -- Particularly at the scale that we might want to do this.

I'm wondering if some creative solutions could be found here, and I know that other fisheries have used those kind of research set-asides to solve issues, and it's I think something whose time is right, and that is something that I think the council could -- The SSC probably could weigh-in, and the councils could consider it, and I think that perhaps might provide some means to fund the science here, and so I want to put that on the table for consideration. Thanks.

CHAIRMAN NANCE: Thank you, John. Casey.

MR. CASEY STREETER: I've been listening, and I had an issue with my phone, but I agree with John. I mean, the challenges that we had in getting program started, obviously, was finding the funding dollars to do it.

I mean, we raised from our community, through private donations, which, obviously, when you've got water quality, everyone wants to chip in to try to fix the issues that you've got, and so, I mean, from a standpoint of fishermen, to get them involved, I think, if takes root, as long as the information is used to better the fishery, and as long as it can take root and our information can be used to address the issues that we see, and, again, better water for us means better fishing and more profitability, which is important.

I mean, we have a lot of challenges in being profitable anyway in the fishery, and so, when we've got water quality issues, it really, really makes it that much more difficult, but we want to keep the program going, obviously, and we just want to make sure that our information can be used to help better it for everybody, and that's the main goal.

CHAIRMAN NANCE: Thank you very much. I appreciate all this discussion, and certainly the presentation. We're going to go ahead and break for lunch now, and we'll come back at --

MR. RINDONE: Dr. Nance, Dr. Isaacs has his hand up.

CHAIRMAN NANCE: Okay. Go ahead, Jack.

DR. ISAACS: I was just thinking, while all this stuff was going on, and, of course, we don't want to forget the fishers who are involved in all of this, and I don't know if these red tide events have the same kind of potential for psychological issues among commercial fishermen that we saw among that group with like the oil spills and things, but I wonder, if the red tide pops up while all this other stuff is going, assessing the biological issue, that you just try to keep track of the fishers and see if this is affecting them, if it's stressing them out, if it's having an effect on them beyond the pocketbook.

It might be an opportunity to kind of address the problem too, while we're going out and assessing the biological resources. Of course, I have no idea how somebody would go about doing that, and it's way, way, way beyond my area of expertise, but it's something to think about.

CHAIRMAN NANCE: Thank you, Jack. We'll go ahead and break for lunch and come back at 1:15 Eastern Standard Time.

(Whereupon, the meeting recessed for lunch on January 11, 2022.)

- - -

January 11, 2022

TUESDAY AFTERNOON SESSION

- - -

The Meeting of the Gulf of Mexico Fishery Management Council Standing and Special Reef Fish, Special Socioeconomic & Special Ecosystem Scientific and Statistical Committees reconvened on Tuesday afternoon, January 11, 2022, and was called to order by Chairman Jim Nance.

CHAIRMAN NANCE: Welcome back, everybody. We appreciate the opportunity to reconvene. As I was thinking over lunch, I didn't let Lee know what I was thinking, to have him move after lunch, and the move the red tide up first, and so I hope that Lee didn't think that I was just skipping over him.

Ryan, let's go ahead and move into Item Number VII, which is the National Academies of Science Report on the Impacted of Limited-Access Privilege Programs in Mixed-Use Fisheries. Dr. Anderson is going to be presenting that, but, Ryan, if you could give us the overview, and then we'll move into Lee's presentation.

REVIEW: NATIONAL ACADEMIES OF SCIENCE REPORT ON THE IMPACTS OF LIMITED ACCESS PRIVILEGE PROGRAMS IN MIXED-USE FISHERIES

MR. RINDONE: Yes, sir. Dr. Anderson is going to talk about the NAS report on LAPP programs in mixed-use fisheries, and so fisheries with commercial and recreational use, and Congress lifted the moratorium on and redefined IFQ programs as LAPPs in the 2006 reauthorization of the Magnuson Act, and the issue of IFQs in mixed-used fisheries wasn't addressed though until the Modern Fish Act in 2018, and it called for this NAS study of how fishing under a LAPP might interact with all sectors in a mixed-use fishery for the same species, and so that being commercial, recreational, and charter/for-hire.

Recreational fishing is growing throughout the Gulf of Mexico, and its values and incentives can differ from commercial fishing, and even the different fleets within the recreational fishing community can have different values and incentives. Regional fishery management councils and NMFS benefit from the cooperation among the sectors in striving to rebuild and sustain these healthy fish stocks, while weighing these competing claims for allocation.

Evaluating the effects of LAPPs in mixed-use fisheries requires multiple disciplines, with equal weight to ecology and social and economic science, and so the SSC is going to look at this information that Dr. Anderson is going to present, and you guys should provide any recommendations, as you think appropriate. Dr. Nance.

CHAIRMAN NANCE: Thank you. Dr. Anderson, are you ready?

DR. ANDERSON: I am, and Jessica is going to help me with the PowerPoint. She's got it, and I'm going to tell her, if I remember, when to turn the page.

CHAIRMAN NANCE: If you don't tell her, we'll just stay on Slide 1.

DR. ANDERSON: Yes, I know. I will try and be a good boy. First, I would like to thank you for the opportunity to present this. I have to say that this same PowerPoint was used in a presentation to the Full Council, although the SSC has not seen this yet.

Before I begin, I always like to let people know where I stand on a certain issue before I start to talk, and LAPPs, as you know, especially in the Gulf of Mexico and the South Atlantic, sometimes can be a heated topic, but I have been a supporter of LAPPs, or

ITQs, way back, back when the predecessor to this committee, the Socioeconomic Panel, of the Gulf of Mexico, and we went over the snapper and the grouper proposed LAPP program, ITQ program, whatever you want to call them, and it was two or three-day meetings, and we would report out and go out and say what should you do about this and what should you do about that.

It’s interesting that the folks that were on that with me, Walter Keithly and Ken Roberts and John Ward and Mike Travis, and I think he's around still, and he’s on, and he was part of that committee, and I believe Assane was just finishing up his work on his PhD and attended a lot of those meetings in that capacity.

Here is a list of the committee members that were on this study, and, now, I don’t know how many of you are familiar with the National Academy of Sciences, but they are -- They go out and choose people who they think know a lot about a certain topic, whatever it is, and ask them to serve, and everybody serves for free, and you don’t get paid when you do this, and this was an especially unfortunate, for me anyway, for an old guy that likes to move around, because every meeting was Zoom. We were all virtual, and there were meetings in various places of the country that would have been nice to get out and see, but I was not able to do that.

If you note, you will recognize some folks on this deal, and Sean Powers, our colleague, was a member of that committee, and Sherry Larkin used to be on this committee, the SSC, and you know Steve Murawski and some other guys from this area, and it’s a very interesting committee, in that there were twelve people on it, five of which were economists, and so I felt like I was really in the top drawer there, when I had so many of my own colleagues, and I don’t have so much of that on the SSC.

Now, I have told you my views, but, when you are on a National Academy of Sciences committee, we are told, the whole group is told, we’re here about science, we’re here about social science, and we’re going to look at questions, and you may have your views, and, in fact, we all had to tell what our personal views were on a particular thing, but we were asked to keep those to ourselves and make comments only if we had evidence to back it up.

Also, I want to point out that I did not prepare this PowerPoint, and the PowerPoint was presented by staff, and I am going to try and stick to it and stick to the rules of the Academy, where you share the results. Dr. Powers, I will offer you the opportunity, with the Chair’s permission, if you want to make some comments at the end of this, if you so choose.

I think most everybody here in this room knows what a LAPP is, and a LAPP is a limited access program, another name for an ITQ, and I think that -- It's permits that are issued to harvest a quantity of fish, and you can read that sentence as well as I can, but the whole notion is that they are not licensed to fish, but they are permits to fish for a quantity of fish, and, if they are given to people and made transferable, it provides incentives to harvest efficiently. People want to arrange their activities by boats and their operations, so that they can catch their limited amount of fish as inexpensively as possible and, at the same time, find the highest value for it.

This is the general context, and that first bullet of LAPPs can alter the incentive structure of a fishery in pursuit of better conservation and greater efficiency if appropriately designed and accompanied by effective monitoring and accountability measures.

Now, I read that whole thing because I think it's important that LAPPs alter the incentive structure. Sometimes I've heard other people get up and say, if you have a LAPP, it will do this, and, if you have a LAPP, people will be more efficient, and all it does is alter the incentive structure, and those incentives will work to accomplish the greater efficiency for the fishery, depending upon how they are designed for the area and what kind of monitoring and accountability measures you have, and so that's the important thing. LAPPs don't do anything on their own. They change incentives that, if designed correctly, can have positive outputs.

Now, the restructuring that occurs can have effects elsewhere, and that's what this study is about. What are the impact of LAPPs, or ITQs, on mixed-use fisheries, where mixed-use fisheries are defined where the same stocks, or species, are targeted by recreational, for-hire, and commercial sectors.

The committee charge, you see there are five of them here, and I can go over them, but the important thing is they were stressed, and they were set out in the Modernizing Recreational Fisheries Act of 2018, as Ryan described.

Now, I also like to look at the history of things, and maybe some of you remember when that Act was passed, et cetera, and, well, there was -- It's interesting for me to note that, if you look at the earlier versions of the law, there were a lot of things that were in there that were pushed by the recreational sector, and I think it's fair to say that people who were behind pushing the Modern Recreational Fishing Act were advocates for the recreational sector.

When it was finally passed, and it was passed by a unanimous voice vote on the last day of the Senate, or whatever the deal was at that time, and it was the Senate, but I don't know exactly what committee it was in, et cetera, and the Act was quite different than some of the things that were pushed before it.

For example, one of the things the law said is that all LAPPs in mixed-use fisheries in the Gulf and the South Atlantic will be evaluated every two years. As it turns out, that was lifted, and what happened is they were asked to have the National Academy of Sciences review this once.

You assess the progress of meeting the goals, assess the social, economic, and ecological effects of each LAPP, and, now, you could read this along, but there's a lot of stuff here on social, economic, and ecological effects. Assess any impacts to stakeholders in the relevant mixed-use fisheries caused by the LAPP. Then identify and recommend factors of information that NMFS and councils should consider when designing, establishing, or maintaining a LAPP in mixed-use fisheries.

The last policy here, or the last one, is recommend policies to address any negative impacts to stakeholders, considering costs and/or feasibility.

Now, that one caught my attention, and it caught others attention, when we came to this thing. The question was asked, during the meeting, of wouldn't a more straightforward policy command be to recommend policies to address any negative or positive impacts, considering costs, but, no, and it was only negative impacts that you were supposed to look at, and the positive effects were not mentioned.

Now here are the fisheries that are mandated that were studied, and you recognize snapper and tilefish in the Gulf of Mexico and wreckfish in the South Atlantic, golden tilefish in the Mid-Atlantic, and one that not very many people know much about is the bluefin tuna limited access program, which is regulated by the Secretary of Commerce.

Now, I think it's important that these were the fish that were told to study, and we were also told don't study anything else, and do not go study -- Even if you find mixed fish in Alaska or on the west coast, don't study those, and my mind always says why are we told not to do it, and I think, to me, it was the people -- When you pass something, some people are in favor of it, and some people are against it, and I think the folks that were in --

Legislators for west coast and Alaska fisheries said, all right, if you guys in the south want to study these, fine, but we don't want you messing up our fisheries, and that's my opinion, and I may be wrong, but it is certainly the case that we were told not to study other fisheries, except if you want to use them for broad comparison purposes.

We spent a lot of time, on the study, looking at the causation, and how do you find -- If you're going to compare LAPPs in mixed-use fisheries and LAPPs not in mixed-use fisheries, or even just look at LAPPs in mixed-use fisheries, to see what had happened, how can you figure out what goes on, and the issue is that it's very rare to have two comparable fisheries, one managed with a LAPP and one without. That would be an ideal way to study it, that everything is the same in these two fisheries, except one is a LAPP and one is not. You can look at the comparison and the way the rec sector operates, and the commercial, et cetera, but that doesn't exist.

It's more common when you have a before and after comparison, and a before and after comparison, as you know, is not as easy to draw conclusions on, because is it after this and therefore because of this, or are there other things that are happening.

The committee really did get into this sort of thing and the comparative frameworks, and you study a mixed-use fishery, and you say, well, what are the things that are going on in there, and stricter controls on overfishing, stock assessments, et cetera, et cetera, but what is the difference between the recreational and the commercial sectors if they're separate and if they're together, and we tried our best to do it and I'm not going to go through all of the discussions, but that was one that we were always concerned about.

The other issue was methodological objectives and interdisciplinary. As you notice, the study had five economists, and I think two lawyers, two anthropologists, and then a slug of biologists that made it up, and so there was a lot of disciplines in there, and we had to get together, because sometimes we do different things the way we look at a problem, and some of the discussions, when we started to say, all right, can we draw evidence on this, and there were discussions of you can't make that comparison, because your formulation of the problem is incorrect, and that went on for a while, although most of it we pretty much overcame.

The one problem that we just had to agree on was to do things differently. Economics, if you try to use statistical tools to

determine differences, et cetera, you want to take random samples of your population and then study it and then see if you can extrapolate from the random sample that you took and extrapolate things that you can generalize about the whole population.

Well, and I didn't really know this until we started going about it, but anthropologists are not so hot on random samples, for various reasons, where they want to do a certain study and say, no, we don't want a random sample, because we want to study this, and so they will pick a sample that is not random, but they will pick it and say this is what we want to study, and so we're going to look at those folks, and I think the discussion on this was the economists and the biologists, I think, were on the side of, come on, if you're going to make conclusions about the general population, you can only do it if you use random samples, but we kind of got over that and moved on and said, if there are certain cases where you have to do that, okay, but let's explain it.

Here is the overall findings, and, like I said, I did not make this PowerPoint, and, in some ways, I find it redundant as it goes through, but that's okay.

The overall findings are the use of LAPPs in mixed-use fisheries reviewed by the committee showed little discernable impact on recreational or for-hire stakeholders, and so, if you have a LAPP in a mixed-use fishery, it doesn't affect the operation of the recreational fishery, and, at the same time, we looked at the outputs of LAPPs in mixed-use fisheries and found that the outcomes are similar to fisheries that do not have a mixed-use component, and we really went over that.

On the webpage, the full report, and there's access to the full report, and I would encourage you, if you want to know more about this, to get in and read especially the findings, but, here, we went in and, when we talked to the people, we would say, all right, here is the operation of your recreational sector, or here's the operation of the LAPP, and are there any rough edges between those operations, are there area conflicts, are there time conflicts, are there -- We found out that, for the most part, there wasn't.

The only issue that recreational people, and I guess commercial too, would say is those other guys are in here fishing on our fish, and that was the thing, but there was no overall discernable impact on the operation of either fishery, one from the other, and I think that was not a finding that the people who pushed this act were hoping to get.

Economic impact, there is very strong evidence showing that LAPPs

mediate the race to fish and strong evidence for increased profitability in LAPP fisheries, and so the race to fish is an issue, as far as efficiency and as far as sometimes wasteful practices, and there was very strong evidence that LAPPs mediate that, and they also increase profitability of the LAPP fisheries, which means the fish were harvested more efficiently, at a lower cost, relative to the revenue.

There is some evidence that LAPPs have modestly reduced economically-wasteful overcapacity, and that’s one thing that is -- If you hear about LAPPs, they will say we’re going to cut back on excess capacity. Well, the evidence that this study found, in these fisheries, but there has been a modest amount of reduction in economic waste, and, for the most part, no evidence that associated consolidation has contributed to market power in the quota market or in the fish market.

Here's some of the findings on ecological impacts, and there is strong evidence of ecological benefits in the tuna, the ITQ, the individual bluefin quota, and in reducing regulatory discards and incentivizing avoidance of catch that you don’t want, and so there are some ecological benefits that we found in that fishery.

With respect to the other ones, there is weak evidence of modest ecological benefits in other LAPPs and in improving stock status for select species, and there is no evidence of ecological harm as a result of the mixed fisheries, and some of you may recognize that fellow in the green shirt holding that fish, or maybe not.

There is strong evidence that LAPPs have led to improvements in safety-at-sea. The idea is that, if these guys can go out and fish when they want to, they don’t have to go out in bad weather, and we found strong evidence that that is the case.

Some other things that are interesting is there are mixed, and largely inconclusive, effects of LAPPs on labor, with indications that some participants are better off and others are worse off. There is no direct evidence of the plus-and-minus effect of the LAPPs in studied fisheries on communities, but there is a significant lack of data to assess it.

You will notice, back there on some of the things that we were challenged to do, and it says tell us what happens in the communities, and, essentially, the committee had to say we can’t answer that question, because NMFS and other folks just haven’t collected enough data so that we can make a causal relationship between the effects of LAPPs in mixed-use fisheries on the community effects.

Mixed-use impacts, this is -- Sometimes this PowerPoint is redundant, and, here again, there is no evidence for direct effects of LAPPs on private recreational anglers or for-hire fisheries. However, on the commercial, greater accountability of the commercial sector, due to LAPPs, may be leading to pressures to obtain greater accountability on the part of the recreational sector. You can see that, if that is the case, that can be cause for turmoil.

The conclusions and the recommendations, there are quite a few, and, again, in this time that is allotted to me, I'm not able to go into all of them, but, as with any report, you can go to that document and find it and read the conclusions and recommendations, and they're designed to address economic, social, and ecological impacts of LAPPs and any future LAPPs in mixed-use fisheries.

Many are applicable to LAPPs in single-sector fisheries, and it's important that, for most of the part in this, the recommendations had to do with data collection and the necessity of interdisciplinary impact assessment, and the committee was not proud of the fact, but, like I said, we just cannot answer some of the questions that were posed in the law, because there is not enough out there, data, and, quite frankly, there hasn't been -- Well, I will say this, and I think it's -- There hasn't been enough interdisciplinary work.

Sometimes, when we were going on our sessions, and we were talking about how these different things came up, there were cases of like, well, maybe you and I should, the economists, should study this with an anthropologist, although that never really happened, but that's what has to be done if we're going to get better answers to these questions.

Again, creation of a LAPP can lead to more fishing effort in other sectors, and sometimes, if people are pushed out of one sector, they may go from harvesting another species, and, also, LAPPs may be viewed as barriers to extending recreational access to the fishery, because they can shift decision-making structures by creating a new class of quota holders, and that was a point that was raised quite a bit.

Before you had a LAPP, you had these commercial guys out there, and then you had the recreational guys. Once they get a LAPP, there's something that they can get together on, and it did create a new class of quota holders, although another side of that argument was this just balances the scales of the independent commercial fishermen going against the highly-funded recreational

sector, who gets all their funding and pushes from boats and gear manufacturers.

Increases in the accountability of the commercial sector, due to incentives for higher compliance, may highlight accountability problems in the recreational sector, and we've said that before too, and additional tools are needed to improve accountability across all sectors.

LAPP design features have enduring effects. Advise councils to put more effort, via data collection, research, and deliberation into development and design of new LAPPs and reform of existing ones. Build upon known issues of such programs. Particular attention should go to initial allocation, opportunities for hired captains and crew, and that was one that everybody was going on, is the captain and crew weren't in there on initial allocation. Cost of new entry and transparency.

LAPPs can affect communities through changes, such as increased social conflict, diminished employment, or loss of processing plants, and I am going to stress here that recommendations underscore the importance of the human dimensions research and build on NOAA's data on social indicators on coastal and fishing communities, and this thing was a big thing that was, I think, pretty much accepted by the whole committee, whether they were biologists, economists, or anthropologists. The human dimensions has to be considered.

Major information gaps, here again, the importance of economic and social data, the need for data on mixed-used fisheries. Some of this stuff is general statements that don't mean much, and fishery policy has major economic, social, and ecological dimensions, requiring interdisciplinary conceptualizations, and that's pretty obvious, but finding ways to integrate divergent disciplinary perspectives and qualitative and quantitative data more effectively could lead to new insights, fruitful hypotheses, and more informed decision-making.

For the most part, I want -- Let's skip ahead to the one that says "overall conclusions", please. The committee's appraisal of the influence of LAPPs in mixed-use fisheries is constrained by the scarcity of data. Our conclusions and recommendations are aimed at improving the management system that, in many respects, appears to be working well, and I thought that was a -- It's working well. Recognize how potentially transformative LAPPs can be and the challenges of mixed-use fisheries.

Now, I am, with your permission, Mr. Chairman, I'm going to stop

there, but I'm going to take two minutes to just stop speaking as a member of this committee, which I was proud to work for, and I learned a lot, and I enjoyed a lot, and getting back to my role as a member of this scientific committee, but, more importantly, an economist on this Scientific and Statistical Committee.

Let me point out one thing. Since -- Well, in the recent three or four months, the council has taken action on allocations between recreational and commercial, and I'm not going to say whether that was good or bad, but I'm just going to acknowledge that it occurred, and fish were reallocated from commercial to the recreational sector.

Now, the other point I want to make is that a fact, and another fact is, to the best of my knowledge, and I read Ryan's memos regularly, this point -- This thing was a council action, and it was never brought to the SSC's attention. Now, granted, we don't have that many economists on the panel now, and I don't know what happened to Walter and Ken, and I hope they just said, oh, I'm tired, but we do have Rich, who is with us now, and there is still some people on the Socioeconomic Panel, or whatever it's called.

I would ask the council, and I would ask our leader, Dr. Simmons, to consider -- If you're going to keep us economists around, and you're going to have an SSC, to look at this stuff. Our conclusions are a scarcity of data and studies for commercial -- I don't say that this -- I am not promising that an SSC can say here's the best way to do it, but, if you've got questions, and you say here is the way we're doing it, and, if you put these minds, my biological colleagues and my anthropological colleagues and economic colleagues together, we can say, all right, this is a reasonable approach, and this is likely the way it will happen, and these are the results.

I think that -- Shoot me if I'm being spoiled or thinking of myself, but I think we can add something to what this council does if we take advantage of the combined backgrounds of our SSC, and I will stop there. Thank you.

CHAIRMAN NANCE: Lee, thank you for your presentation and your comments. They're always well received. Do we -- We will go ahead and open the floor up for comments now. David Griffith, please.

DR. GRIFFITH: Thank you, Mr. Chairman. This is David Griffith, and thanks, Lee, for that presentation, and I really appreciate your work and the work of the other people on the committee, and I really enjoyed that report that you guys produced, and I look forward to hearing about more, or the potential for more, research

in the future about this.

Actually, I just have a very specific question about one of the issues that you brought up having to do with -- I think it was labor, and you said something about labor being -- Some were better off, and some were worse off, and were you talking about captains and crew, and was that -- I mean hired captains and crew, and not the ones that own their own vessels and own the shares, but then was that -- Are you saying that it's very difficult for these crewmen and hired captains to get into the fishery because they have to buy shares, or they have to fish for somebody who has shares, and, if so, then what about the ones that are better off? Are they employed for more of the year, or what's going on with that particular issue? Thanks.

DR. ANDERSON: David, you know what you just asked me to do, and I could give a lecture, if I knew all the information, for a very long time on it, but, basically, in some areas, and in some segments, the labor got better, and they may have worked fewer hours, but their wages went up, and I really cannot say that was the problem, and it happens all over, and so it's very difficult to say that, if you put a LAPP in, that labor is going to be worse off or labor is going to be better off, and it depends upon the particular thing, and that kind of goes back to some of the work that I know you've done, where you get in and look at the various cases. I am going to dodge your question, but that's what the conclusion was. In some cases, it's better, for both areas and skill groups, and, in other places, it was worse.

DR. GRIFFITH: Could I ask a follow-up question?

CHAIRMAN NANCE: Yes, go ahead.

DR. GRIFFITH: Thanks. But was the committee interested in the whole issue of crew being able to get into fishery, by either buying shares or figuring out some way for hired captains and crew to get into the fishery? I am just curious about that.

DR. ANDERSON: The issue came up in a lot of ways, and one of them is, once you get this thing settled, and people have their rights, it is difficult for others to come in, and it's not just laborers, but it's a captain may have a hard time getting in, because, if a boat has got an ITQ share with it, and it's profitable, then you can't get in it for free, and it's kind of a -- I don't know how to say this, but this is one of the pros and cons of it.

If the idea is to get the people making more money, that's fine, but, at the same time, you cannot have everybody get in there,

because the ones that have it -- The reason that they are making money is that it's limited, and I liken this, in some ways, although it may not be a perfect comparison, but, if you want to go out and be a farmer now, try to go out and buy a profitable piece of land for farming.

There is so much that you have to hire and everything, and it's hard to get into farming, and it's hard to get into an ITQ, LAPP, fishery that is successful, if you want to keep it successful, and there are programs that I guess you can try to make subsidized loans or whatever, and there are pros and cons of all of those. All that a subsidized loan may do is increase the price to the owner, and so it's a problem, and it exists whenever you have a property that is stable.

DR. GRIFFITH: Thanks. I really appreciate that, Lee. Thanks again.

DR. ANDERSON: You're welcome.

CHAIRMAN NANCE: Will, please.

DR. PATTERSON: Thanks. Thanks, Lee, and thanks to your committee for its work on this. You know, the presentation, I realize, and you stressed a few times that you didn't put it together, but it's quite qualitative, and I'm not really sure, given what we've been asked, as far as review of this and providing input to the council, that we have enough information here to really say much of anything.

One thing that is curious to me is if you guys tried to quantify any of the impacts of the LAPPs, and words, or statements, are made in the presentation about better, improved, but to what extent? Like how successful have these programs actually been to achieve their goals, and not necessarily the unintended consequences, like David just was asking about, but to actually achieve their goals, and then, as a follow-up to that, like how well have the ones in the Gulf done to achieve their goals, and are there certain aspects, among the range of LAPPs that you examined -- Are there certain characteristics of programs that may make them more likely to achieve the goals that were stated when the programs were created?

DR. ANDERSON: Will, you're a toughie. That was one of the issues, is that we looked them over, and there is some more detail in the written report, but, for the most part, no. I wasn't just being gentle, or kind, to David, and these things take more detailed study, and so the general thing is that it's going to be effective.

Now, depending on what goes on.

The better you have for fisheries markets, the better you have setup so that the quota itself can be transferred easily and in a transparent market, those are the sorts of issues that help, and the more the fishers are able to understand that, and not only know how to be a good fisherman, but know how to be a good speculator on different shares, that's where it's going to pay off. I am sure that isn't the exact answer you want, but I do not know of a study that said, boom, boom, boom, one, two, three, these are the things that you look for.

DR. PATTERSON: Okay. Thanks.

CHAIRMAN NANCE: Trevor, please.

MR. MONCRIEF: Thank you. I want to kind of go back to -- I was going to ask a question about Slide 16, and we don't have to go back to it, but it kind of follows Will's point, and I do appreciate this presentation, and it was very informative, and I'm trying to do my best to flash back and forth between the report and everything else, to answer my questions, but it says to creation of a LAPP can lead to more fishing effort in other sectors.

I was just wondering how -- Was that just theorized, that if you cut people out of a different sector that their effort is going to go to another sector, or is that like a theory of like, well, if we create a resource that might be constrained, and, all of a sudden, it's going to lead to a derby fishery in other sectors, and I just kind of wonder how that conclusion came to be.

DR. ANDERSON: Well, it's a theoretical thing that you come up with. If you've got a fishery that has X boats, and you put in a limited entry, and so you've got X minus Y that can still fish, those Y boats aren't going to disappear, and they're not going to just say, okay, I'm going to go home and tie my boat to the dock, and so they go into the next most profitable, or, if not profitable, at least comparable, so that their skills work there, and they'll go in there, and so there is a crowding out, and that's theoretical, and it has been shown to be the case in action.

MR. MONCRIEF: Okay, and is that -- Just a point of clarification, and is that moving into fishing for other species, basically like fishing down the chain, almost, or is it other sectors themselves, like mostly recreational?

DR. ANDERSON: For the most part, it's the commercial will go to other commercial. I don't know if they go up or down the chain,

and the guy who catches fish and sells it doesn't care where in the food chain it is, and he cares if there's a market for it, and if his gear and his marketing skills, et cetera, can do okay there, and so those are the ones that will do it.

Sometimes, and this will be more hypothetical, but you've heard that a commercial guy, depending on the makeup of his boat, could get into taking people out to fish and become kind of a big, ugly charter boat, or a headboat.

MR. MONCRIEF: I know what you're talking about, and what I meant by fishing down the chain is essentially moving down a less-regulated species that was easily accessed.

DR. ANDERSON: Less regulated, but would -- Yes, because, if they're regulated, then it's hard to get into, and so you look around say where can I go, and where I can make similar money, or at least some money.

MR. MONCRIEF: Thank you for that, Lee.

CHAIRMAN NANCE: Thank you. Steven.

DR. SCYPHERS: Thank you, Lee, for the presentation and all the great work by the committee. I really enjoyed the report and the presentation today. I wanted to ask you about one of the conclusions, where you said there was not a lot of direct evidence on community-level social impacts, and I appreciated your comment that there is, oftentimes, a scarcity of human subject data on this, but I was curious if, through the committee meetings and other activities, if there were indirect sources of information, or public comment at the meetings, that helped the committee think about the social impacts.

I am particularly curious about the commercial and the fishing community aspects here, as it talks a lot about consolidation and those types of issues, and a related question, just if you have thoughts on it, is how difficult it is to measure this type of social change using community-level measures.

If a working waterfront is changing, is that something that you would see in community-level data anyway, and just, in general, what the general sentiment was on if these types of programs had mixed effects on fishing communities or if it's largely considered likely negative effects that might be harder to detect, and I just was curious of your thoughts on that. Thank you.

DR. ANDERSON: Okay, and this is a tough one, because we certainly

got, in the different townhalls that we had remotely, we had some people say that all hell has broken loose, and other people said it's okay, and the issue that we had is a rule that we tried to use as a committee is we want to know if there is a causation here, and can you say there is a direct link between bringing a LAPP fishery into an area that has mixed-used fisheries that is this going to affect the people.

Now, you know it's going to affect it, but the stuff that we saw is, that you saw, is, no, we don't have enough evidence to say, for certain, in a social science concept, this was the result of that, and it will happen every time, and so there is a lot of that kind of stuff, and I'm sure you could find it yourself, by going out and talking to people, but the committee itself, and I think I'm quoting it, and you saw the slides that I didn't prepare, and there is just not enough there.

That's why, in some ways, they threw up their hands, but they said we are not going to throw up our hands, but we're going to say, NMFS and Sea Grant, if we're going to do a better job at making correct decisions, we have to be able to predict what will happen to the social thing, and we're going to need better data.

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

DR. ISAACS: Lee, and everybody else who served on that committee, I want to tell you how much I enjoyed this report, and it was very informative to me. I can remember, when I was in graduate school, the idea of ITQs and IFQs were relatively new.

They were being tried in New Zealand at the time, and they proved to be somewhat successful there, and then there was this thought, or promise, of them coming to the United States, and I thought it was interesting to see how the level of success with the ITQs and IFQs has been observed, but not quite perhaps at the level that I thought, in my little head, back in graduate school, that it seemed like the ITQs were going to be this big solution to a lot of problems, and it looks like, so far, they have addressed certain problems, but that there are other problems in the fishery that remain, and ITQs have not been able to address them quite so well.

I would actually like to see this report, when it's finished, be read by lots of people in graduate school, to understand the importance of institutions and structures of markets in determining how well something like this actually works, and there is many a slip between the cup and the lip, as the saying goes, but one of the things I saw in your paper was that some quota markets seem to be more successful than others, and do you have

any thoughts on what might make a quota market more or less successful?

DR. ANDERSON: Well, just use your microeconomics. The more information available, the number of people in the market on the buyers and sellers side, and a lot of it had to do with do they know what they're buying and what they're selling, and what good does it do you to buy an ITQ, and how much do you pay for it, and so there has got to be some basic economics in there.

I am going to answer another question that you brought up, if I may, Jack, and that is one of the things that really bugged me about this is that a bunch of people got together and said ITQs, or LAPPs, are not a panacea, and that really made me mad, because I said who says they're a panacea, and I never said they were a panacea, and I don't know anybody who says they're a panacea except for somebody that wants to publish an article arguing against the panacea, and I go on too much there, I know, but I think that that's one thing.

They are not a panacea, and they do not work on all problems, and they do not work in all fisheries. When I say I'm an advocate of it, it doesn't mean that I would mandate them for everybody, but I would say, if you're thinking of a fishery that has some economic efficiencies in it, that has some biological problems, can you design a program for that fishery, and I think you can, and especially if you give care to the way that the initial allocation is made, so that you not only consider the first-time people, but the second-time people, and what's going to happen two generations down, when people die and these things are out there on the market. It's not a panacea, but it has a lot of good attributes.

DR. ISAACS: Thank you, Lee, and I appreciate that, and I wish you were here in person, because I would love to be able to pick your brain after the meeting too, to learn more. Thank you very much.

DR. ANDERSON: The lack of a bar after a meeting is a high cost of these types of meetings.

DR. ISAACS: Well said.

CHAIRMAN NANCE: Mike Travis.

DR. MIKE TRAVIS: -- the IFQs that have been brought up, and to kind of go back a little bit, I think, to Will's original question, and so, I guess somewhat in defense of the group's report, and what they had at their disposal and what they did not, at the time they were meeting and working on their report, they had access to

a number of documents that we provided, including the initial five-year reviews of both the red snapper and grouper-tilefish programs.

However, at that time, we were in the midst of working on the following joint review of the red snapper and grouper-tilefish programs, and that review was not completed until after their committee had finished their deliberations, and so they did not have that at their disposal, and that's rather important, because we had a lot more information, and there's been a lot more data collected, and a lot more analysis has been conducted since the initial reviews, and, unfortunately, the panel did not have that at their disposal when they were writing up their report.

However, I do want to note that all of the reviews, including the last joint review of the two programs, have been made available and have been reviewed by this SSC, and so everyone, except of course the new SSC members, should be aware of that.

The second point I will make is the idea that the committee puts forth about, and I don't disagree with them, about the idea of you don't want to do before-and-after comparisons, and it's not the best approach, and you really want to do -- You want to use a counterfactual approach, and I think we all understand that, but it's nice to think of, in theory, and, in practice, it can be far more difficult, because these programs don't work in an experimental LAPP, and I will give you an example, because I've been working with some of the committee members on those types of analyses.

An excellent example of where this becomes very difficult is in the case of the grouper-tilefish program, where that was implemented in 2010, and, well, what else happened in 2010? This thing called the BP oil spill, and that had some major confounding effects with respect to how the program worked in the early stages.

In addition, at that same time, we were also implementing new regulations with regard to the bottom longline component of the fishery because of sea turtle issues, and so you have two significant confounding events when you're trying to determine exactly what the effects of the LAPP program were, and so, you know, it sounds easy, in theory. In practice, it isn't, a lot of the time.

Then I wanted to mention, and, actually, speaking of new research, and so Jack asked about quota markets, and Lee had mentioned that, yes, that the research that we've done so far has not shown any exercise of market power due to consolidation and concentration. However, there is a recent piece of research, done by Andrew

Ropicki and others at the University of Florida, which, if I recall correctly, was presented to the council, and I don't recall it being presented to the SSC, but it's a social network analysis, and the gist of it is, and I don't want to get into the details here, but we may need to take a closer look at behavior and how entities operate in these markets, because, in the past, we have generally assumed that individual entities behave on an individual basis.

This new analysis suggests that there may be some cooperative group behavior going on, and that would force us to revisit the market power analyses that we've done in the past, and so research advances, and we learn from new science.

DR. ANDERSON: Correct, and, Mike, you're right that, if we're going to do these kind of studies, sometimes you're stuck with before and after, but that's where it takes -- You've really got to get down and say, let me separate out the confounding effects, and can I sit down and theoretically think what it is, can I get in and look at those, and maybe do it econometrically. Marty Smith, who was on the -- And Joshua are both very good economists who do a lot of that sort of work, where they try to work on the econometrics of it, but it's not easy.

CHAIRMAN NANCE: Thanks for those comments. Luke.

DR. FAIRBANKS: Thanks. I just have a brief comment and then a question. First off, thanks, Dr. Anderson, for that presentation. I thought this was a really interesting report, as a lot of other folks have mentioned, and I guess my first comment is -- It kind of came out of the report, but also from some of this discussion, and I think I've only been on the SSC for a short time, but I do -- I was encouraged by the report and some of the discussion, because of the way that the report itself did stress some of these needs for interdisciplinary research and interdisciplinary kinds of data, and I think it raises a lot of questions that I think are good for us to wrestle with, things like epistemological questions about causation and quantitative versus quantitative data and how these things can be integrated with.

I think this presentation here, and hopefully going forward, it can kind of make those epistemological challenges something that we should probably really work to confront and wrestle with and try to resolve, rather than just something to get past or work around when we're doing things like determining best available information or what have you. Again, having only been on this committee for a short time, I'm sure that this is probably a long-standing thing that you all have been working on and discussing

for quite a while.

The second thing is a more specific question, and it was kind of brought up in the last question, and I was just curious if you could talk a bit more in the report, and, in the presentation, there's a mention that there is no evidence that consolidation has contributed to market power in the quota market. However, stakeholders have expressed a lot of concerns about fairness and equity, and so I'm kind of curious about what -- Are the stakeholder concerns not considered evidence, or are their concerns more about political power, rather than some strictly defined market power, or, if you could just speak more to that, to clarify it for me.

DR. ANDERSON: Well, I will do the best I can, and I will probably get myself in trouble here, but the comments were, of the fisheries we studied, we did not see any market power, and especially for the quota itself, and I will say, and, like I said, I'm getting myself in trouble, and my wife always says that you should shut up when you get an idea in your head, and it's clear, to me, that the surf clam fishery has market power in the quota.

The industry has not caught the entire whatever you call it, their quota, for I don't know how many years. They catch 60 percent of it, and so 40 percent of that quota is not being harvested, and now that means -- Why is it not being harvested? Because you can't just catch a clam and then sell it in a roadside stand. It's got to go through processing, and the processors -- If they have the natural blockade on getting it -- They don't want to buy from everybody. They buy from who they want, and, if they don't want to buy it, they don't buy it, and that's what monopsony is. They don't have to buy all that's out there to meet their market demand. They have a monopsony power.

I have said this several times to the council, but it doesn't seem to be doing much good, and so there are cases where other aspects can cause trouble with it, but I think your basic -- I don't think you can get a monopsonistic power on grouper or snapper, and there are just too many places that you can sell it, and it doesn't have to be processed in a special way, and so the issue there is that we said we didn't find it in the fisheries we looked at, and it doesn't mean that it doesn't exist elsewhere.

CHAIRMAN NANCE: Thank you for that. Mandy, please.

DR. ANDERSON: One other thing. You said you wanted to -- I hope that the folks in the back of the room there, our fearless leaders, are looking at this and saying maybe we can, when the council needs

some advice on this, we can let -- We can turn this loose to the committee, including our biologists and anthropologists, and, if we have to bring on ad hoc, get Ken and Walter back here somehow, and our fellow from Texas A&M, and he's ready to go, and so we can do this, I think, but at least I would like to try.

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

DR. KARNAUSKAS: Thanks, Mr. Chair, and thanks to Lee and the committee for putting together this presentation and the report, and I found them both very informative. My comment was kind of to Lee's last point, and I'm trying to think what we do with this information, as an SSC, and what recommendations we could give to the council.

I guess my take-home so far, from what's been presented, is that we've got some potential issues with LAPPs, and there are some data gaps that need to be filled, in order to fully understand the impacts of LAPPs, and in particular with respect to social and economic impacts, and the SSC has wide expertise to help the council work through some of these issues, and so I guess I would ask, of the SSC, what, if anything, can we recommend to the council on this, and I know that there is the recent working group that was created to look at ITQs, and is there something that we want to steer them towards, coming out of this work. Thank you.

CHAIRMAN NANCE: Thank you. Ava, go ahead.

DR. AVA LASSETER: Thank you. I just wanted to tag-on to what Mandy just said and what Lee has been talking about, that there was a specific recommendation in the report, and I think it speaks to this, and so I just sent it to staff. You have this foundation to kind of build on to make recommendations to the council, and so this is actually in the report.

DR. ANDERSON: Then it's got to be right. Thank you. The thing with this, the NMFS and the councils -- We can do all we can, but there is very little that an SSC, by itself, can do. If the council, if the staff, if they don't want to, for whatever reason, don't want to address these questions, it won't get answered. Somebody has got to say, all right, these are the things we want to accomplish, and we think that we need to look at -- I don't know, and dare I say it again, but some reallocations, and how can certain goals be accomplished by reallocations, and how can they occur, given the rules for making reallocations, or it doesn't even have to be reallocation.

If we're going to have the SSC work -- For the most part, we cannot

spring up and say we want to do work, because it won't necessarily be listened to, but, if we can get some folks to say, yes, we think we can use some solid SSC background, with interdisciplinary people on teams and working together, to answer our specific policy-related questions, then we'll do it. Otherwise, we're just sitting here talking up steam.

CHAIRMAN NANCE: A quick question, to Ryan, maybe. When the council received this presentation, did they have any motions?

MR. RINDONE: Mr. Chair, they did not.

CHAIRMAN NANCE: Okay. Thank you. That doesn't mean that we can't have, and so, if there are any, please think of them, and we can certainly entertain those. Luiz.

DR. BARBIERI: Thank you, Mr. Chairman. I guess my point, or my question, is for Lee. Lee, thank you for that great presentation, and it was great to have that summary, and not just a summary of the committee report, but also by having your own personal impressions as a very experienced fisheries economist, and so I appreciate that.

My question is, usually, these types of National Academy studies, especially one like this, that is tied to the Modernizing Recreational Fisheries Act, would have, in there, a quasi, or I would say mandatory, response by NOAA Fisheries, within a specific timeline, where they would not necessarily address directly each one of those recommendations that come out of the report, but they usually at least present a game plan or give us some idea of how those recommendations will be addressed. I would imagine that, in this case, what the National Academy calls the sponsor for that study was NOAA Fisheries, and is that correct, Lee?

DR. ANDERSON: Yes.

DR. BARBIERI: Right, and so, in that case, I would expect a set of formal responses from them, and I understand that, in this study, the recommendations are being directed not just to NOAA Fisheries, but to some other bodies, like the councils themselves, and perhaps others as well, but I think that that response that they provide, and I guess it's in the form of a report, if I remember correctly, is helpful in saying, okay, what are the steps that are going to be taken to try to operationalize, right, because a study of this nature, like you said clearly, can go into all the small details and too much into the weeds, and it's really looking at the big picture and trying to integrate different types of information and make some generalized recommendations and an

assessment of what we discussed and some generalized recommendations.

Until we see something that is more operational on how these things are going to be implemented, it's hard to tie them directly to actions that come out of this, and so, anyway, do you know anything about that, or can you help us understand?

DR. ANDERSON: Luiz, the studies that come out from the Inspector General -- They do a lot of studies, and usually maybe NMFS will ask the Inspector General, or there are some other organizations that I am saying wrong, but they come out and say this is what we want, and they will say -- NMFS has to respond to those different things, and it's right in the document, but an Inspector General and whatever this other avenue is, and I can't seem to think of it, and maybe it is the Inspector General, but it's different than these National Academy of Sciences.

They pay for it, and they pay for it because it's mandated by a bill, and they get their money, and they do good work, or at least I think they do, and they get a lot of free labor, but they do good work, but they don't have to report to anybody, and so I think it would be nice if somebody did, or I guess somebody at NMFS could say let's get a team here to tell us to come up with some things of what we can do about this. I don't know whether that's a good idea or not, but there is no mandate to respond to a National Academy of Sciences report.

DR. BARBIERI: Okay. Thank you. Just because, Lee, in a couple of other studies like this that I have been involved in, that mandate was there, and it was explicit in the language, right, that set up the process for this study to be put in place.

DR. ANDERSON: Then you have the advantage on me, Luiz. I do not know of one. None of them that I've been on have been that way, and I know you've been on them, and you were on a sister study while we did this, and I know that, but we never had mandates. We have to write the report, but there is no mandate that NMFS or somebody has to do, that I know of.

DR. BARBIERI: I see, yes. Thank you, Lee. I appreciate it.

CHAIRMAN NANCE: Mike, if you have a specific one to that point from NMFS.

DR. TRAVIS: I do, and so Luiz and Lee kind of were jumping around it, but I think they got the gist of it right, and it really depends on the authorizing legislation, and so, if the act

requiring the National Academy of Sciences report explicitly says that the agency has to officially respond to the recommendations in the report, then we will respond to the recommendations in the report, and, yes, that has been done, and Luiz is correct that that definitely has been done in the past, and I have worked on responses to NAS reports in the past, but, for whatever reason, in this case, the Modern Fish Act, as we call it, did not require the agency to officially respond to the recommendations in this particular report, and so that has not been forthcoming.

CHAIRMAN NANCE: Okay. Thank you.

DR. BARBIERI: Thank you, Mike. That's very helpful. Thank you.

CHAIRMAN NANCE: Yes. Richard.

DR. WOODWARD: I just quickly wanted to add my agreement of need for interdisciplinary research, and I would be happy to participate in such endeavors, and so I just want to make sure that Lee hears my voice and knows that I am with him on that.

I did have one question. In the presentation, or the preparation of the report, did you give any consideration at all to the use of LAPPs within the recreational or the for-hire sectors, or was that completely off the --

DR. ANDERSON: We only had discussions on it, and I forget where it went, but there were some in the Gulf, but that wasn't in the rules, and Joshua Abbott wanted to do some stuff on it, but it just didn't come to fruition. I cannot recall if we were told not to, but we didn't, and I do think it's an interesting topic.

DR. WOODWARD: With Josh on the committee, I would have thought it would have come up.

DR. ANDERSON: But Josh can only do so much.

CHAIRMAN NANCE: Yes. Lee, thank you for that presentation. Ava, one last comment?

DR. LASSETER: Speaking to the question that Richard just had, I believe there is a recommendation though that does say that the council should consider -- I am trying to find it. Continue discussion, and, if I find it, I will send it to staff and have them put it on the screen in just a moment.

CHAIRMAN NANCE: Okay. Unless there are specific -- I am kind of with Will on it, and it's a very interesting report, and I

appreciate hearing it, and there's not really anything that I think we can respond to. There are certainly some general things. If anyone wants to offer a motion, a general motion, on things we would like to see happen, please do so. John.

DR. FROESCHKE: Hopefully I'm not backtracking us too much, but I'm just trying to understand a little bit earlier comments from Lee about wanting more involvement in the process of developing allocation documents and things, and he sort of mentioned the red grouper amendment specifically, and I am just trying to think through the mechanics of how that was done, and it was really using existing protocols, if you will, and simply trying to account for the changes to the FES and things, and so I guess I'm just not sure, in the future, what sorts of evaluations the SSC thinks that they would make, or what kinds of information you would like to see earlier on in the process.

DR. ANDERSON: If I could, and I don't want to be a smart-aleck here, but I am sometimes am. I have sat in on four days of listening, or maybe five or six days, total, listening to the Great Red Snapper Count. I have seen so many things on that, and the council and the SSC looked at it and came up with comments.

All the time that the council was considering that reallocation, and, now, this part could be my fault, and I should follow-up, but I never saw anything of it being mentioned that the council is considering it, and I never saw a letter to put this on the agenda and let's talk about what it is and what we're trying to do, and here is -- Just brief us, so that we can make comments, and those are the sorts of things -- If you're going to get advice from us, you're going to have to ask questions to help us get informed, and it's partially on us, and I know I didn't do a lot of studying on this, but I was -- In fact, there was a -- Well, no, I won't say that. I say that I talk too much, but I was surprised, and I saw it in a *National Fisherman* release that the council does this. I thought, that's where I hear about it, and I'm on the SSC, and I don't even hear about this until it makes the industry press?

DR. FROESCHKE: Well, a quick follow-up, if I may.

CHAIRMAN NANCE: You bet, John.

DR. FROESCHKE: The first part, about the Great Red Snapper Count, we didn't address allocation on that one, but, on red grouper, we did. I mean, we discussed the allocation options the council was considering before the SSC, because we requested and received catch-level-specific recommendations, conditioned on the various allocations the council was considering, because, if you recall,

due to differences in selectivity between the fishermen, the ABC and the OFL recommendations do differ, based on the different allocations, and so some of that information was available.

DR. ANDERSON: If that is the case, I apologize. I do not remember a specific case where we were looking at a -- Well, I'm sorry, but an issue is I think it would be nice, if the council and council leadership wants answers on these things, from a general sense, ask us, and that's all I'm saying.

CHAIRMAN NANCE: It was presented from grouper and so forth, but it's just it was kind of a subtle way to do it, Lee, and we came up with different allocations, and then we provided the ABCs and so forth for those, and so, while it wasn't implicit, it was certainly --

DR. ANDERSON: It was an ABC discussion with implications for reallocation, and it wasn't a reallocation discussion.

CHAIRMAN NANCE: That's true.

DR. ANDERSON: Okay, and that's my mistake.

CHAIRMAN NANCE: But I hear what you're saying. Ava.

DR. LASSETER: Thank you. I looked up the recommendation, and I just wanted to share it with the group, and I think it speaks to what Richard was just talking about.

DR. ANDERSON: That is a good thing, and, now, I'm sure that Dr. Simmons is looking at that and saying, well, that's all well and good, but I've got a lot of stuff to do, and so that may -- We ought to find out what is a good idea and what Dr. Simmons and the leadership, the chair of the council, thinks are something that they're going to, and if they can hone it down and then come up with specific questions, I think the SSC or sub-committees, or maybe we could bring on some ad hoc people for a special problem, and we can help.

Like Rich said, we're willing to do it, and I was being really sarcastic about the Great Red Snapper stuff, because I've sat through a lot of it, and I bet you guys like Will Patterson and those other guys wouldn't mind sitting through a discussion where we bring in some economics and some anthropology, and I'm sure we would learn from guys like him and the other guys and just give us some thoughts on it.

CHAIRMAN NANCE: Okay. Thank you. John Mareska.

MR. MARESKA: This is John, and so I guess I was -- The slide that was up on the presentation, where it talked about the additional tools and stuff that would be needed, and I think that was Slide 13 or 16, and it was in bold, and, as I was reading the report that goes along with it, I was thinking that all those additional tools are probably the recommendations that are at the tail-end of this report, which included the reference that Ava just put up, and I just want to thank the committee for all those recommendations. It gives me a lot to think about, in regard to making any kind of recommendation in regard to this presentation and the report. Thank you.

CHAIRMAN NANCE: Thank you, John. Will.

DR. PATTERSON: A couple of points. One, to what Lee's been talking about with the reallocation types of discussions, I think reallocation has come before us in a few different ways, a few different times, in the past couple of years, and I am always a bit leery, and I think my public comments attest to that, about reallocation types of discussions within the SSC, and I am very sensitive to that our discussions are centered on the scientific basis for evaluating different potential policy changes and not the philosophy of the policy change or somehow endorsing a particular policy change.

To what Lee is, I think, alluding to here, I don't think we have had much, as far as any economic analysis of how those policy changes might affect various constituencies or sectors, and maybe that's the thing that he is voicing frustration about, because, while I don't know much about that science, I would like to hear more socioeconomic type of analyses, and we've had more of that type of analysis in the past few years, and I think it's been quite helpful to balance out our review of information that goes to the council.

The other comment I had was, based on what Ava just put up about the text of that specific recommendation, which seems to me -- If that could be put up again, so that people could see it, that might be helpful. Basically, it says that councils and partners in state-based management, and, if there's a LAPP fishery in a mixed-use fishery, then perhaps reforms could be instituted so that you would have accountability among all the various sectors that you have in an IFQ, or ITQ, fishery.

I think this type of comment -- It seems kind of like a backdoor way to say, hey, you should have catch shares, and not that there's anything inherently wrong with catch shares, but I just think that

they can be evaluated on their merit without saying, well, we now have this accountability in IFQ fisheries on the commercial side, and can we institute the same kind of accountability on the recreational side, either for-hire or private.

To me, it really comes down to something that John Walter mentioned earlier today, and that's uncertainty, right? The less uncertainty we have in the science, the closer the ABC is to the OFL, and, the less uncertainty we have in the management realm, the closer the ACL, or the ACT, is to the ABC.

Any of these types of management scenarios, or processes, which help to decrease management uncertainty would enhance the -- It would increase the amount of the quota, because of either scientific uncertainty or, in this case, management uncertainty decreasing, but, again, those can be considered on their own without linking them here to LAPPs, and they can be considered in mixed-sector fisheries for which the commercial side doesn't have an IFQ, or an ITQ, program.

I just think, in general, we should all be trying to think about ways to decrease either scientific or management uncertainty, to make the fisheries in our region more efficient and more sustainable.

DR. ANDERSON: Mr. Chairman, can I bust in here for a minute?

CHAIRMAN NANCE: Go ahead, Lee.

DR. ANDERSON: First, Will, I certainly agree that you have to be careful on distribution issues, and I would never say this is the right distribution, because you cannot say that, but all I'm saying is that we can provide information that says these will be the effects of it, and here is different ways of handling it, and so I hope that I was not interpreted as saying that I want to get in this and that I want to tell people what's the right way to do it, and that's definitely not our role.

DR. PATTERSON: I didn't mean to imply that's what you were saying, Lee, and so sorry for the confusion.

DR. ANDERSON: No problem.

CHAIRMAN NANCE: Carrie, I'm going to move you up to the front.

EXECUTIVE DIRECTOR SIMMONS: Thank you, Mr. Chair. Dr. Anderson, I feel like you're still kind of mad at me for cutting down that presentation a couple of years ago. In all seriousness, I feel

like perhaps we've dropped the ball or something, and I'm not sure, and I am sensing some frustration, and so I guess I would look to my lead economist on staff, and other economists, and Dr. Lasseter, to help us with these.

The council was presented these two National Academy of Sciences reports, but, in all honesty, it was in a very short time period, and there were, I'm sure, a lot of good questions asked, but I don't know that people really were trying to think about applying these recommendations to some of the fishery issues that we're dealing with right now.

I think Ava has pulled out some good recommendations in this, and I guess, as we're thinking about our allocation review framework and putting that together, I would expect that the team would look at these closely and try to see if there's anything that we could garner with that, that we could perhaps put a working group together or bring to the full Standing and Special SSCs to try to get at some of these recommendations.

I guess, along the lines of what Dr. Patterson suggested, I mean, as far as economic analysis, I believe, when Dr. Diagne discussed some of the methodology used for those, in regard to red grouper, when the council was looking at reallocation, they thought there was no real new methodology that was being proposed, and so what use would it be in bringing this to the SSC, but perhaps we should rethink that process a little bit more, and so I'm open, and I'm all ears to helping improve this and how we can use this a little bit better, but, yes, we are getting pulled in lots of different directions, and so, if this body wants to make some recommendations along those lines, it would be appreciated.

DR. ANDERSON: Carrie, I -- I am butting in again, Mr. Chair.

CHAIRMAN NANCE: Go ahead, Lee.

DR. ANDERSON: I was hesitant to say that Dr. Simmons should be doing something, but I wanted to just make sure that this gets -- My whole point was that big vote, and I thought it was a vote, and it made the *National Fisherman*, was that, where there was a reallocation, and, yet, it was not specifically brought to the council, and that's all I'm trying to -- Now, maybe you -- You have a lot of other things on your mind, and I am not trying to tell you how to do your job completely, but I would just make a suggestion that the SSC and its interdisciplinary folks can address these things if you ask it, and I am certainly -- I was very careful not to have anything that I say that was insinuating that you're not doing your job.

EXECUTIVE DIRECTOR SIMMONS: Thanks, Dr. Anderson. I think I hear what you're saying, and I think I need to get with lead staff on this and think about, other than the IPT process, what would be the best way for you all to review amendments and look at this analysis, if I am understanding you correctly, because I think, in the past, we have kind of floundered on some of this, and perhaps it's a smaller group, a special group, or perhaps it's a desk review, but I do think we need to put our heads together and think about the best process for this, to make it open and transparent. Thanks.

CHAIRMAN NANCE: Thank you.

DR. ANDERSON: Carrie, all the points you made on my comment were absolutely correct. I went back and looked at them, and you were right on making that thing clear. Thank you.

CHAIRMAN NANCE: Okay. We need to start cutting discussion off. If anybody has a specific motion or things like that, we need to entertain that. I'm going to let Mike, Luiz, and John go, but we need to start wrapping up the general discussion. Mike.

DR. TRAVIS: Okay, and so I just want to say that I think I understand where Lee is coming from on this issue, because, for those of you who were not around a decade or so ago, number one, when we had what I will call a full socioeconomic SSC, at that time, that group played a rather critical role in reviewing the economic analyses in particular, but I think they reviewed all of the analyses when the council was looking at sector allocations for red snapper.

I recall David Carter and Juan Agar, in particular, making multiple presentations about their economic analyses, and the SSC, the socioeconomic SSC, providing feedback and then making revisions and then providing the revised analyses to this group, and then the socioeconomic SSC basically signed-off on what they did.

I don't want to put words in Lee's mouth, but perhaps that is the type of process that he is looking for the current group to engage in, again, and, whether that is feasible or appropriate, that's not really for me to say, and that is a council staff decision.

CHAIRMAN NANCE: Thanks, Mike. Luiz.

DR. BARBIERI: Thank you, Mr. Chairman. I will just try to make a general, I guess, statement here about the direction that we are getting or not regarding some of these items, because I think this

one, in my opinion, and an earlier one, the LGL presentation on the oil platforms, it was really unclear what was expected of the SSC, and I understand why, and I'm not criticizing staff by any means, but it's just that -- I mean, you saw how we struggled with the last one, and I think, to some extent, we're struggling with this one as well, unless folks have motions there in the background and John Mareska, right after me, is going to be making a motion for this to move forward.

This presentation was given to the council, and, yes, in a very general format, but, today, we did not get too much into the weeds of the report either, and so it's unclear to me whether the council sent this to the SSC saying, hey, we already received a general presentation, and we would like to have more specific and detailed itemized recommendations from the SSC, or comments from the SSC, on how we operationalize some of these recommendations or what the expectations -- I assumed, looking at the agenda, that this was presented more on an informational basis and as a way to start discussion on some of these issues that can be followed-up in future meetings, or in discussions with the council or this working group that the council puts together to discuss, to address, LAPPs, but it is unclear to me here what is expected of us, in terms of specifics for motions to the council.

CHAIRMAN NANCE: It was more informational to me, Luiz, because certainly the recommendations in the back of the report -- I am all for those recommendations, and I don't know if we need to formally say that or not. John.

MR. MARESKA: I am very supportive of Luiz's proposition that we really not take any action on this until we can, as he said, get down into the weeds and really go through some of these recommendations. To Will's point about trying to take actions that are going to decrease uncertainty in management, when I look at Recommendation A3, and they talk about the use of angler management organizations, which is a new concept to me, which are for-profit NGOs that have the ability to sell recreational shares to commercial fishers, that raises a lot of questions, in my mind, and so, again, I think, as an SSC, we probably need to review these specific recommendations in the back of the document before we take any actions. Thank you.

CHAIRMAN NANCE: Thank you. With that, we will go ahead and, I think, cut off discussion. It would be good to look at those, and, if you have specific recommendations that we want to discuss in the future, you can let myself or Luiz or Ryan know, and we would be certainly happy to do that. I'm going to turn a couple of minutes over to Mandy, and she had a comment at the end of the

red tide report that she wanted to make, and then, following her remarks, we'll go ahead and take a break, but I won't give you a time until we hear from Mandy. Mandy, the floor is yours.

DR. KARNAUSKAS: Thank you, Mr. Chair. I had my hand up just before the lunchbreak, and I wanted to respond to a couple of things on that discussion, and so sorry to reopen that, but I think Jack Isaacs had asked a question about the social impacts of these red tide blooms, and this is something that the Science Center has done a lot of work on, and we had a whole research initiative, where we actually engaged fishermen in interviews, and I can say, from that work, and I can send some presentations out on it, but there are several social impacts.

In those interviews, we heard about people being devastated, by having their businesses lost, and we even heard some people say that friends had committed suicide, and they attributed that to red tide, and so the social impacts can be very severe, and we have studies those.

Then the second point that I wanted to make is I heard, from the discussion after Brendan's presentation, that there seems to be some support for the collaborative water quality monitoring, and I was wondering if there were some recommendations that we wanted to give the council on that.

I think this falls in line with sort of the more reactive management and recognition of the need for that, and I think we're seeing a decreased reliance on stock assessments and an increased reliance on sort of the interim analysis and the value of real-time information, because there's a lot of ecosystem changes that are occurring very quickly, and so I just wanted to revisit that topic. The collaborative monitoring I think could definitely benefit from some SSC support, and I wanted to see if we could revisit that, if there were some motions that we wanted to put forward to the council regarding the value of that work. Thank you.

CHAIRMAN NANCE: Okay. If anybody has -- We will go ahead and take a break now until 2:20. If anyone has a specific motion that they would like to put together and send in for the red tide, then we can discuss that after our break, and so we'll go ahead and come back at 3:20 Eastern Standard Time.

(Whereupon, a brief recess was taken.)

CHAIRMAN NANCE: It looks like time to start again. Hopefully everybody is back. Before we leave the subject, do we have any

recommendations or anything on red tide or on the LAPPs?

DR. PATTERSON: Jim, I sent a motion to the meetings email address.

CHAIRMAN NANCE: Thank you, Will. When you get that, can you go ahead and post that, please?

DR. PATTERSON: Actually, this doesn't have to do with LAPPs, and this has to do with red tide.

CHAIRMAN NANCE: Okay. That would be great. Lee, I wanted to thank you again for that presentation. As always, it was excellent. Okay. Let me go ahead and read this, real quick, and then we can -- This is a motion by Dr. Patterson.

The SSC endorses the collaboration between the Florida Commercial Watermen's Conservation group, NOAA Fisheries, and the Florida Fish and Wildlife Conservation Commission. Efforts should be made to understand current limitations to expanding the FCWC's efforts and to potentially recruit participation by other stakeholder groups into similar research and monitoring efforts. The benefits of this form of cooperative research and monitoring and likely to be immense, as stakeholders on the water can often respond more quickly and efficiently that agency and academic scientists when environmental events, such as red tides, occur. Cooperative research also facilitates data exchange and enhances communication among stakeholders, researchers, agency scientists, and managers, thus improving the efficiency of the research, assessment, and management system. We have a motion. Do we have a second for that?

DR. ALLEN: I am happy to second.

CHAIRMAN NANCE: Thank you. We have that motion, and I don't know if it needs discussion, but we can take discussion if you wish.

DR. PATTERSON: Just a couple of edits that I see. Before the "Florida Fish", "the" should be not capitalized, and then "Conservation" and "Commission" should be capitalized.

CHAIRMAN NANCE: Okay.

DR. PATTERSON: Then, after spelling out the "Florida Commercial Watermen's Conservation group", after "Conservation", in parentheses, "FCWC".

CHAIRMAN NANCE: Okay. Perfect. Okay. Any discussion? David, go ahead.

DR. GRIFFITH: Can you just give me some background of where this is coming from? This is the first I've seen any of this discussion, and where is it coming from? Did I miss something?

CHAIRMAN NANCE: This is from the red tide presentation before lunch.

DR. GRIFFITH: Okay.

CHAIRMAN NANCE: This was that presentation that we had before lunch, and then we just revisited it for a minute after, but this is a motion from that research effort.

DR. GRIFFITH: Okay. Thanks.

CHAIRMAN NANCE: You're welcome. Jason.

MR. ADRIANCE: Thank you, Mr. Chair. I understand the motion in relation to the agenda item, but I'm wondering if we shouldn't put something in here speaking to Gulf-wide, because I think this type of cooperation wouldn't just be beneficial to off of Florida, in the case of red tide, but in any research going forward.

CHAIRMAN NANCE: I think it says in there, and maybe I am missing this, but it says that efforts should be made to understand expanding the FCWC's efforts and to potentially recruit participation by other stakeholder groups into similar research and monitoring efforts. I think that kind of implies that. We may want to make that a little more specific.

MR. ADRIANCE: That's fine. If that's the understanding, I'm fine with that.

CHAIRMAN NANCE: That's my understanding, but that may not be everyone's. Doug, please, Doug Gregory.

MR. GREGORY: Thank you. I think something should be said upfront that what the purpose of this group is, or the purpose of this effort, and is to research and monitor harmful algal blooms, or is it to do fisheries research, collecting data, like otoliths or providing fish, and we just need a focus, because I had never heard of this group before today, and I have no idea who they are or what their goals are or anything, and so this needs to be focused on an effort. Thank you.

DR. PATTERSON: To that end, in the fourth line, with the period before "effort" and after "Commission", we could just say "in

monitoring red tide distribution, density, and effects on water quality parameters." That would address Doug's comment. This makes it more specific, which is contrary to what Jason had just mentioned.

CHAIRMAN NANCE: I think this certainly helps from Doug's comment. Does it make it too specific from what Jason was asking for?

MR. GREGORY: If I may?

CHAIRMAN NANCE: Absolutely, Doug. Please.

MR. GREGORY: Thank you. If we change "red tide" to "harmful algal blooms", that's a generic term that every state has a problem with, and I don't know if every state has a problem with red tide, and so that would be one way of making it more generic, and everybody in the business recognizes red tide as a harmful algal bloom, which I think is a term that has been developed in the last five years or so to encompass all these various things, including, I think, hypoxia.

DR. PATTERSON: Mr. Chair, can I speak to that?

CHAIRMAN NANCE: Yes, please.

DR. PATTERSON: My intention in offering the motion, and so I should probably clarify that, is to talk about this specific example, and this was the example that we were provided, and my perspective is I think this is a great example of cooperative research for a very pressing need, and I think it happens to be a mechanism by which data can be collected quickly and efficiently, and I would like the motion to focus on this particular cooperative research that is occurring, and, if others want to offer subsequent motions that make this more general, great, but, for this one, my intention is to focus on this particular group and their efforts.

CHAIRMAN NANCE: Thank you, Will. I appreciate that. Jim.

DR. TOLAN: Thank you, Mr. Chairman. This is a very, very minor wordsmithing, but, about three-quarters of the way down, where it says, "can often respond more quickly efficiently that agency", shouldn't it be "than agency or academic scientists"? It says, "that agency".

DR. PATTERSON: Yes, it should be "than".

DR. TOLAN: Thank you.

CHAIRMAN NANCE: Okay. Thank you for those comments. Let me read this, real quick.

CHAIRMAN NANCE: The SSC endorses the collaboration between the Florida Commercial Watermen's Conservation group, NOAA Fisheries, and the Florida Fish and Wildlife Conservation Commission in monitoring red tide distribution, density, and effects on water quality parameters. Efforts should be made to understand current limitations to expanding the FCWC's efforts and to potentially recruit participation by other stakeholder groups into similar research and monitoring efforts. The benefits of this form of cooperative research and monitoring and likely to be immense, as stakeholders on the water can often respond more quickly and efficiently than agency and academic scientists when environmental events, such as red tides, occur. Cooperative research also facilitates data exchange and enhances communication among stakeholders, researchers, agency scientists, and managers, thus improving the efficiency of the research, assessment, and management system. We have this motion made, and we have a second. **Any opposition to this motion? Hearing none, the motion carries without opposition.**

Any other -- I think this is a great -- Will, thanks for making this, and, so, if there are no other motions, we will go ahead and move on to -- Carrie, please.

EXECUTIVE DIRECTOR SIMMONS: Mr. Chair, I just wondered if we could talk a little bit about next steps for the LAPP report, just to make sure we're on the same page about what you would like to see at the next meeting. In talking with Dr. Lasseter in a little bit, we're going to set aside some agenda time, at a future meeting, to pull those recommendations out and spend a little bit more time discussing those and then perhaps providing, if warranted, application or operatization of those into management, and is that the plan?

CHAIRMAN NANCE: I would like to see something like that, yes. In looking at those, when I was reading over the materials, those look like something that would be very supportive, supported by groups, and probably a little more input into those and discussion on those specific items would be good, and I think we can make some motions based on those discussions. Do others feel that same way?

DR. GRIFFITH: I do. I agree with you, Jim.

CHAIRMAN NANCE: Okay. Anyone opposed to that idea? Hearing no opposition to that, Carrie, I think that's a way forward on that.

Does that make sense, Carrie? Thank you. Will.

DR. PATTERSON: I think that's a good idea, to let us dive into this in a little more detail. I think it will helpful, and we usually get this, and so maybe this is an unnecessary comment, but just to have clear guidance from the council and council staff in the terms of reference for the meeting, just to exactly what type of commentary or what types of things the council would like us to weigh-in on with respect to the report.

CHAIRMAN NANCE: I think that's very good, and that's something that Luiz was mentioning at the very end of the break, but I think it's -- Clear guidance is certainly welcome. Okay. Thank you very much, everyone. Now let's go ahead and move on to Item Number IX. Trevor.

MR. MONCRIEF: Apologies, Mr. Chair, and I know we're good to move on to the next one, but I just wanted to ask, real quick, if we're going to do it for this NAS report and if we're going to do it also for the other as well.

CHAIRMAN NANCE: Which other?

MR. MONCRIEF: Not the LAPPs, but the -- I can't remember off the top of my head, and does anybody want to fill in the blank for me?

MR. RINDONE: Trevor, are you talking about another NAS report?

MR. MONCRIEF: Yes, the Data Management Strategies for Recreational Fisheries and Annual Catch Limits, if we're going to go through that -- If we're going to go through an extended process for the LAPP NAS report, do we also need to do it for the other as well? We probably don't have to have an answer right now, and I just wanted to bring that up. If we're going to go into that one, we might want to think about the other one as well.

CHAIRMAN NANCE: Okay. Thank you. Luiz.

DR. BARBIERI: Thank you, Mr. Chairman. Trevor, that's a good question, and it's a matter of us discussing whether a formal presentation, like Lee gave here today about this other study, is something that we should bring before the SSC and then identify a list of action items, or recommendations, that the SSC can review in more detail and weigh-in.

Mr. Chairman, we can discuss this with staff offline, but, if this is the will of the committee, I can coordinate with Sean Powers and Steven Scyphers, who were also part of that study, and we can

try and put something together and bring it to the SSC at some future meeting.

CHAIRMAN NANCE: I think what we can do, Luiz, is talk offline and be able to do that, but I think it sounds like it's something that the committee wants to see, and so I think that would be good.

DR. BARBIERI: Right on. Thank you.

CHAIRMAN NANCE: Okay. Thank you. I think we're set to move on then to Item IX, which is Dr. Cass-Calay. Shannon, are you on?

MR. RINDONE: Dr. Nance, I'm actually going to take care of this one for Shannon.

CHAIRMAN NANCE: You are?

MR. RINDONE: Yes. It's kind of a last-minute thing, and so, Bernie, if you could go ahead and pull up that presentation, please.

CHAIRMAN NANCE: I was just going to say that Shannon's voice got a little deeper.

MR. RINDONE: Yes, Shannon has let herself go and turned into me.

CHAIRMAN NANCE: There's a lot of trust here.

REVIEW: SIMULATION OF THE EFFECT OF MRIP-FES ON CATCH ADVICE FOR THE HISTORICAL KING MACKEREL STOCK ASSESSMENT

MR. RINDONE: No worries. Some of you may remember that the Science Center gave a presentation on a simulation that it had done for the council in looking at the effect of the MRIP-FES recreational landings estimates on the original SEDAR 38 stock assessment, and they provided a step-wise model progression that showed basically going from the original SEDAR 38 base model to the current update.

There is this four-model setup here, and Model 1 is the baseline model for SEDAR 38, and Model 4 is the update, which uses FES along with the more advanced terminal year for the model of 2017, and it also updates the shrimp bycatch.

When you guys were shown this table last time, a couple of the -- Model 2 and Model 3 had the same data included in them for the ABC, and that was an error, and this is just to show the corrected table, which follows what would seem to make sense. Model 2 is

essentially the base model from SEDAR 38, using MRIP-FES, with data through 2012 and the 2012 shrimp bycatch estimate from the original SEDAR 38 stock assessment, and, obviously, incorporating FES here, as expected, shows a sizable increase in the projected ABC.

Then, if you go to Model 3, which uses FES, but updates the shrimp bycatch with data through 2012, you see a reduction in that projected ABC, and then Model 4 is the SEDAR 38 update model, which includes data through 2017, which also is reflective of the lower recruitment that we've seen for kingfish and the lower yields that correspond therein.

The point of this was just to circle back on this, since there was that error in the original table, just to complete that feedback loop here, and there is no action that is required of the SSC for this. That's all, Mr. Chair.

CHAIRMAN NANCE: Okay. Thank you, Ryan. I know that the -- Right after the meeting, Shannon found the error in pasting, and the report reflected the correct numbers, and so what we're doing here is just showing the presentation with the correct numbers.

MR. RINDONE: Yes, and it's available, if anybody wants to dive into a little bit more, but there is no action that's required of the SSC.

CHAIRMAN NANCE: Okay. Perfect. Just to let the SSC know also that the right numbers were -- When I did the presentation to the council, we used the appropriate numbers during that presentation. Thank you for that, Ryan.

MR. RINDONE: No problem.

CHAIRMAN NANCE: Any comments or concerns or questions on that, on the king mackerel stock assessment values? Okay. Perfect. Let's go ahead and go into Item Number X, which is Discussion of a Draft Essential Fish Habitat Amendment and Data, and, Dr. Hollensead, are you going to present, or do we have David Dale on the line, also?

DR. LISA HOLLENSEAD: Yes, Mr. Chair. We have David Dale on the line. If you would like me to, I could work through the scope of work, briefly.

CHAIRMAN NANCE: Why don't you go ahead and do that and remind us, because it's been -- I remember when Trevor was -- We were talking about this probably three meetings ago, and we had asked David

Dale to come and give a presentation, and it's taken us that long to get to that point.

DISCUSSION OF DRAFT ESSENTIAL FISH HABITAT AMENDMENT AND DATA

DR. HOLLENSEAD: Yes, that's a correct review, and so Trevor had asked for a little bit more information, based on our discussion of the essential fish habitat amendment, on the consultation process, to sort of get an idea, which is probably a good thing to do, but just sort of an overview of what this document not only entails, but to put it in context in how it's used in that process.

Mr. Dale was there, three meetings ago, to present, and we ran out of time, and he has graciously come back and will be ready this afternoon to provide the presentation. Following his doing so, I will review the draft generic amendment that we've got for essential fish habitat here, as revised to-date, as well as give you a progress report since our last discussion on this topic. That sort of concludes my review of the scope of work, Mr. Chair.

CHAIRMAN NANCE: Thank you very much. I appreciate that, and so we'll go ahead and turn -- David, are you on?

MR. DAVID DALE: Yes, I am, Mr. Chair. Thank you.

CHAIRMAN NANCE: Good. It's good to hear your voice.

MR. DALE: I want to thank you for the opportunity to talk to you about essential fish habitat consultations today. My name is David Dale, and I'm the National Marine Fisheries Service's Essential Fish Habitat Coordinator for the Southeast Region, and I work in the Habitat Conservation Division in the Regional Office in St. Petersburg.

I started working for the division back in 1989 in Galveston, Texas, when I was still an undergraduate student of Dr. Nance at Texas A&M. In that capacity, I was a field biologist conducting consultations in Texas, and then, in the early 1990s, I moved to the Panama City facility and did consultations in Alabama, Mississippi, and Florida, and then I finally landed in St. Petersburg in the mid-1990s, conducting consultations across the State of Florida and Puerto Rico and the Virgin Islands, and then I assumed the role of the region's Essential Fish Habitat Coordinator in the mid-2000s.

As I understand, I've been asked here to help the SSC understand how the council's EFH identifications and descriptions inform EFH consultations, and so, on your screen and in your briefing book,

I have a provided a short handout that we've produced describing the EFH consultation process, as background information, and we can refer to that on the screen as necessary, but I thought I would start with a brief introduction and background of consultations performed by the Habitat Conservation Division. After that, we can have discussion and questions.

In the National Marine Fisheries Service, two divisions conduct consultations, under a variety of authorities, one of those being the Protected Resources Division, who consults under the Endangered Species Act, and also kind of a consultation under the Marine Mammal Protection Act, and both of those acts were passed in 1972.

The National Marine Fisheries Service, and our precursor agencies, back when we were in the Department of Interior, have been in the consultation business for a very long time, using other authorities, and, in the National Marine Fisheries Service, it's the Habitat Conservation Division, which has the primary responsibility for conducting many of these consultations.

Those authorities include the Fish and Wildlife Coordination Act that was originally passed in 1934, and amendments in 1946 required consultation for modifications to any stream or other body of water by any agency under a federal permit or license. The 1958 amendments are considered this Act's present form, and it added a provision requiring fish and wildlife conservation to receive equal consideration among other public interest review factors.

In 1972, the Clean Water Act was modified. Section 404 regulates the discharge of dredge and fill material into wetlands and waters of the United States. The Environmental Protection Agency promulgated guidelines for the U.S. Army Corps of Engineers to follow when evaluating and issuing Section 404 permits.

The Corps of Engineers was given 404 permitting authority, likely because they had been permitting anything impacting navigable waters of the United States since 1899, under Section 10 of the Rivers and Harbors Act of that year. The Corps and Engineers and the Section 404 permitting program is by far the largest customer of Habitat Conservation Division consultative services, and that has been going on since the early 1970s.

Another authority is NEPA, the National Environmental Policy Act, and that was also passed in the early 1970s, and we review and provide comments on environmental assessments and environmental impact statements. Again, the Corps of Engineers is our major customer here, because the activities that they take are authorized

under the Water Resources Development Act, and these acts are enacted every few years, authorizing various projects, such as flood control, port and channel maintenance, shoreline and beach stabilization, and these are really large-scale projects with large-scale impacts, and these projects are becoming increasingly time consuming for our consultation biologists.

One of the strongest authorities that NOAA Fisheries has, other than the Endangered Species and the MMPA, is the Federal Power Act, and, specifically, Section 18 authorizes the National Marine Fisheries Service to issue mandatory improvements for fish passage at hydropower facilities, and these are regulated by the FERC, the Federal Energy Regulatory Commission.

Fish passage prescriptions are non-optional and must be implemented, and the Habitat Conservation Division generally works hand-in-hand with the Protected Resources Division on many of these license applications, because of ESA-listed species, such as sturgeon, and these consultations will receive priority, because the Federal Energy Regulatory Commission licenses have thirty to fifty-year terms, and so, when these come around, it is an opportunity that we cannot miss.

This brings us up to the 1996 amendments to the Magnuson-Stevens Fishery Conservation and Management Act, which introduced a requirement for councils and the National Marine Fisheries Service to identify and describe essential fish habitat for federally-managed species.

It also requires federal agencies which license, permit, fund, or undertake any activity that may adversely affect EFH to consult with the Secretary of Commerce, which has been then delegated to the National Marine Fisheries Service, and address comments and recommendations we provide for the conservation of the EFH. Interim rules went into effect in 1999 and were formalized in 2002.

We've been in the consultation business for a long time before the EFH regulations became effective in 1999, and so what did the EFH regulations change, or the EFH provisions change? Prior to EFH, we consulted and provided recommendations to protect and conserve generally any living marine resources, and, for the Habitat Conservation Division, that would be those resources that are not covered by the Endangered Species Act, threatened or endangered species, or those species protected by the Marine Mammal Protection Act.

We were not, and we are still not, limited to consulting and commenting only on Magnuson-Stevens Act managed species. What EFH

did, however, do was place a focus on those federally-managed species and the waters and substrates necessary for those species for spawning, feeding, breeding, and growth to maturity. That is the definition of EFH that is provided in the Magnuson Act itself.

In my opinion, the biggest change with EFH was that agencies were now required to specifically respond back to the National Marine Fisheries Service regarding how they would or would not incorporate our EFH conservation recommendations. This is written in the Act, but not the regulations, and it is not required under many of the other conservation authorities that I talked about earlier that are undertaken by the Habitat Conservation Division.

It is specific to EFH and the effects on species managed under the Magnuson Act, and so, other than fishway prescriptions under the Federal Power Act, comments provided by NOAA Fisheries Habitat Conservation Division, under those other authorities, would normally be addressed in the decision documents produced by federal agencies, and those would include things such as statement of findings for Corps of Engineers permits or in NEPA documents, such as final environmental assessments and findings of no significant impact or in environmental impact statements and the associated record of decision.

What it means for EFH is our recommendations provided cannot be buried while addressing other comments and other competing interest reviewed factors. The federal agency must respond, in writing, directly back to the National Marine Fisheries Service, on how they are incorporating our recommendations or the reasons they are not.

The Habitat Conservation Division does not limit ourselves to commenting only on projects affecting EFH, but now we place a focus on EFH, largely because of the overwhelming consultation load and limited staff and other resources of the program.

There are a few types of consultations identified in the EFH regulation, abbreviated and expanded, which are project-specific consultations, and they are based on the scope of the project, and they have just slightly different timelines.

Programmatic consultations are for large numbers of similar activities with largely known effects, and I would consider something like the U.S. Army Corps of Engineers nationwide permit program as a type of programmatic consultation. Once those nationwide permits are issued, following a consultation, we never see the individual implementation of those nationwide permits. Nationwide permits are effective only for five years, and so we do

reconsult on that program every five years, and we also have a programmatic consultation with the Bureau of Ocean Energy Management, and that is linked to their NEPA analysis for their oil and gas leasing program, which comes around every five years in the western and central Gulf of Mexico.

The final type of consultation in our regulation is called a general concurrence, and I consider this also to be a type of programmatic consultation, and we have several of those in place in the Southeast region. We have them with the U.S. Coast Guard, for their marine events, such as boat parades, offshore fireworks, offshore boat races, and we have them within our agency, with the Sustainable Fisheries Division, for their review of letters of acknowledgement and permits for scientific research and exempted fishing permits, the National Marine Sanctuaries, for their research activities in the Southeast, and we also have one with the Southeast Fisheries Science Center, for their research activities.

The consultations which take most of our time are project-specific consultations, and the vast majority of these consultations are incorporated into the environmental review procedures that existed before EFH was introduced in the Magnuson Act in 1996.

Again, the U.S. Army Corps of Engineers is our biggest customer, and so we have agreements in place with them to use their procedures for conducting EFH consultations on their permits and federal construction activities, like I said, since we’ve been consulting with them on those procedures before the enactment of the EFH provisions in 1996.

Up on the screen, you will see the general EFH consultation process. At its most basic, an EFH consultation consists of a federal agency providing the National Marine Fisheries Service with an EFH assessment, and the National Marine Fisheries Service responding with EFH conservation recommendations, and then the federal agency’s response to our EFH conservation recommendation.

However, as you can see on this chart, a lot of coordination can occur before the EFH assessment is received, and there are some processes afterwards that can be used to settle differences between the National Marine Fisheries Service and the federal agencies.

Generally, an EFH consultation begins with an EFH assessment, and, by regulations, an EFH assessment must include a description of the proposed action, an analysis of the potential effect of the action on EFH and managed species, the federal agency’s conclusions of the effect on EFH, and any mitigation measures they are

proposing. This is where the regulated public and regulatory agencies rely on EFH identification and descriptions made by the councils.

For relatively simple projects, EFH assessments can be brief statements, focusing their conclusions on the effects on the waters and substrates identified as EFH. For example, a Corps of Engineers public notice will describe filling a small area for commercial or residential development or building a dock or pier over seagrasses. For more complex projects, EFH assessments can dive deeper into how the project affects the spawning, feeding, breeding, and growth to maturity functions on managed species, and that are those life history functions identified in the Act that define EFH.

The council is required to identify and describe EFH for each major life stage of each managed species, based on the best scientific information available and consistent with National Standard 2. If no information exists on a given species or life stage, and the habitat usage cannot be inferred from other means, like similar species or another life stage, then EFH should not be designated for that species life stage.

Our existing EFH identifications and descriptions were completed in 2005, and they used seven major life stages for all council-managed species except coral, and so those were eggs, larval, post-larval, early juvenile, late juvenile, adult, and spawning adult. All EFH information is required to be reviewed every five years, and the Gulf Council undertook those reviews both in 2010 and 2015.

Anywhere EFH is identified and described for any managed species, we are to consult and provide conservation recommendations on activities that may adversely affect the EFH to the appropriate federal agency. The regulated public sometimes gets confused by our EFH designations, which appear to be overly expansive, not realizing that they are a summation of habitats required by multiple life stages of the many species managed by the council.

I will finish up my comments here, noting that there is a subset of EFH called habitat areas of particular concern, which councils are encouraged to identify as well. These areas are to be based on one of four factors: importance of the ecological function provided by the habitat, the extent the habitat is sensitive to human-induced degradation, the extent the habitat is or will be stressed by development activities, and the rarity of the habitat.

Habitats identified as HAPCs are not afforded any extra protection in the consultation process. However, we use the HAPC designation

to give higher priority and greater scrutiny to any activities affecting HAPC. The Gulf Council has largely limited its essential fish habitat HAPCs to coral and deepwater corals, and so we don't utilize this EFH tool much in consultations. BOEM has longstanding lease stipulations, in their oil and gas leasing program, which avoid these areas, and we also largely expect that these HAPCs will be avoided for both the emerging wind and aquaculture industries.

While the council has restricted fishing activities in HAPCs they have designated, that is not a requirement. An HAPC designation does not automatically equate to fishing restrictions, and so, if the council should choose to identify nearshore or inshore habitats as HAPCs, according to the criteria mentioned above, we would apply that additional priority and scrutiny to any consultations affecting those designated areas. With that, I will stop and take any questions, and hopefully I'm leading you guys down the right path.

CHAIRMAN NANCE: I thought it was an excellent summary, and I really think you presented that in a manner that's very easy to interpret and hear. Any questions?

MR. DALE: I don't know if that's good or bad.

CHAIRMAN NANCE: Trevor, did that address some of your questions that you had?

MR. MONCRIEF: Yes, and I think it clearly articulated the vast amount of things that you have to deal with on a daily basis, Mr. Dale, and I do appreciate you going through all of that stuff, and I think it will help me better understand the choices we make, as far as EFH goes, what Lisa is going to present to us.

CHAIRMAN NANCE: Okay. Any other comments? From my perspective, David, it was very clear. I think it presented a very concise view of how the consultation process works, and so I appreciate you doing that for us.

MR. DALE: Thank you, Mr. Chair. I wasn't quite sure what was needed by the committee, and I know that the council and the committee doesn't see EFH that often.

CHAIRMAN NANCE: No, but I think the key is, when we were having that presentation on essential fish habitat, several times ago, some questions and concerns came up about the consultative process and what was involved and how it went down the different avenues, and so I think this was perfect, and the presentation about how it

works and what is involved, from an agency perspective, but also from a perspective for the states and things like that. I don't really have anything. Does anybody else have questions for David? Harry, please.

MS. ROY: Harry, you're self-muted. Dr. Nance, he doesn't seem to be unmuting.

CHAIRMAN NANCE: Okay. Harry, if you can unmute yourself, it would be great to hear from you. As Harry is trying to do that, does anybody else have a comment or a question? Seeing none, I guess we can move on from this item. Lisa, is there anything that you have?

DR. HOLLENSEAD: Yes, Mr. Chair. If you're amenable, I was going to walk through the draft document. If you recall, when I gave the last presentation on EFH, I sort of gave an under-the-hood look of what the different methodologies would entail, to get some feedback from the SSC, but I did not quite go -- I went through a little bit of the alternatives, but I didn't go through the document, and so, at this time, it might be good to have the SSC just review that a little bit and get any feedback, if anybody would like to provide some at this time.

CHAIRMAN NANCE: That would be great. Thank you for that.

DR. HOLLENSEAD: Okay. While Bernie is getting that up, one of the things that I did just want to alert the committee to is, when I gave the presentation, there was a lot of good comments from members, including really taking some deep consideration into the spatial data layers that were going to be used to inform the various methodologies, specifically looking at that Alternative 2, which would be sort of our current methodologies, and I will kind of review those again for folks.

That, of course, would have a pretty big influence on what those results would be, and, at the time, I had provided a sort of list of the metadata, and so for the various spatial layers, and so it gave an idea of like the time period of when the data was collected, and this is specific to habitat data layers, for example seagrass and mangroves, sort of the spatial extent, a little bit, what state agencies, or what agency, had been responsible for collecting those data.

It was nice to see that in the list, and it was a little bit informative, but, for these sorts of data, it is much better to visualize these things. One of the things that is very stark about the visualizations is you can kind of see, pretty quickly, the

different types of experimental design used to collect those data, and some are transects, and some are satellite and photo imagery, these sorts of things, so that you kind of see, when you pull them up really quickly, just how different they are, and so you get a better understanding of, when you clip these layers to these ecoregions and other habitat layers, and the life history tables, why they sort of develop in the way that they do.

I had wanted to show this to the SSC, based on the previous input, but I wanted to make sure that that was nice and polished before I do that, and, generally, we have been talking about the methodology that we already have here, sort of clipping these data layers with habitat and the species life history tables, and I talked a little bit about the kernel density estimates and the boosted regression tree, but it might also be nice for the SSC to look at those raw position data as well and then put up maybe some example maps.

I know that, last time, I had used gag grouper, and so maybe do something like that again, so you can get an example of where those broad data points are and what those raw data spatial habitat layers look like and then, perhaps, the finished, quote, unquote, sort of product of each of those for an example for gag grouper and put those in like a web-based portal that committee members could then sort of click through and get a better idea and what you’re looking at and what it is using to, like I said, inform these alternatives.

That’s going to take a little bit of time, and we’ve already made some progress on that, but it’s not quite ready for primetime just yet, and I’m hoping perhaps by the March meeting that that would be made available to you, or certainly before the April council meeting, so that this committee could provide some feedback then at the council level after that, and so that’s progress sort of being made behind the scenes, but, in the meantime, I wanted to get the committee’s feedback on the document.

Some of you folks may remember the stock determination criteria document, and this was sort of a large document that considered just about every FMP that the Gulf Council manages, and sort of this big document looked at it species-by-species.

Well, this document is similar to that, and so it’s in the same vein, and so it’s sort of a non-traditional document, as opposed to something like our catch level documents and those sorts of things, and, as David Dale had gone through, the council is required to have descriptions of EFH for all managed species down to these life stages, and so I’ve even got it a little more broad

than he does, initially, or at least what appeared in the 2005 amendment.

Right now, I'm just considering, in the document, those eggs, larvae, juvenile, and adult species, and, when you break that out by managed species, you're looking at over -- If you assign EFH for each of those life stages, for each of those managed species, you're talking about easily over 200 decision points, which is not the way to start a new year, and so, instead, the IPT level has decided that, okay, what is the best way to perhaps present this information to the council in a single-action alternative that gets at things a little more simply and is based on the data available to hopefully reduce the number of those decision points.

One way of thinking of it is what I've got presented in this document here, and so certainly I would welcome any SSC member, if they have any comment or anything that they would like to see that they think could be improved, throughout the document, and I would certainly welcome that feedback during this time, but, specifically, I had a couple of questions for the committee regarding the layout and the structure of the alternatives, as a way to perhaps present this to the council.

Certainly, if I could have a summary of the discussion of which to sort of bolster that discussion at the council level, it might help council members better digest something that the alternatives could be sort of from a defensible standpoint scientifically, that this still gets at what the council needs to do, in terms of describing EFH, and, at the IPT level, those folks are all happy, and the Habitat Conservation folks also feel that this sort of fulfills all the stipulations of not only the amendment, but also this five-year review that's required. Mr. Chair, it looks like Trevor has a question. If you would like me to stop, I can answer his question.

CHAIRMAN NANCE: You bet. Trevor, go ahead. Thank you.

MR. MONCRIEF: Sorry to interrupt, and I was racking through my head all those past conversations, and I have the bulk of what I remember, but I kind of remember specifically what is my question, and the reason that I wanted to bring this up, is we had talked about gag, and we had talked about the options and defining essential fish habitat for it.

Then I had brought up the case of something like mangrove snapper, which has had a significant range of expansion and is seen in the estuarine areas all the way to the offshore areas, and that large, expansive habitat and everything else may trigger an EFH

consultation every time someone does anything anywhere, and I remember that one coming up.

I guess, when I'm thinking about this, if we're going to go with species-by-species examples, it may be useful to have one that is like gag, that is kind of a region-specific species, and then one that might have a much larger distribution across the board that could really impact this process, like two opposite ends of the spectrum.

DR. HOLLENSEAD: Yes, I think that's a good idea, Trevor, actually, and that's certainly something we can do as we sort of develop this visualization portal, and I have made a note here that we can use gag grouper, but we could also use something, a different species, if we have the data to look at those.

Actually, that brings me to a point, and so, just real quick, to review the process with which the council current describes EFH, Bernie, if you wouldn't mind to scrolling down to Table 1.1.1, and then Figure 1.1.1 is also underneath that.

Currently, the Gulf is broken out into these larger ecoregions described in the table and in the figure below it, and so this is generally how those are categorized out, and then, if we scroll down to the next figure, as well as looking at some depth information, and so you've got these offshore boundaries, inshore boundaries, and so to take into account depth into these considerations as well.

Then, if we scroll down to the top of the next page, these are the various habitat types that are considered within those ecoregions and within those depth strata types, those offshore boundaries, or inshore boundaries, estuarine boundaries.

Then these are linked up with life history tables for each species and life stage, and so this would give you some information from the literature, looking at some species, like juvenile red drum associated with submerged aquatic vegetation, and so you would look at any area where you have submerged aquatic vegetation, and then you would say, okay, this is likely what we would describe as EFH for juvenile red drum, for example.

Most of our species have this sort of data, Trevor, and so kind of getting to what you were talking about, and so something like gray snapper might fall under something like this. We've got some really good literature data, and we've also got some of these really good sampling programs that have been looking at these habitat layers and quantifying where these areas actually are, and

so then you would spatially go in, and you would overlap those layers, those ecoregions, the depth boundaries, as well as these habitat types, and you would say, okay, and that's how you would create your map.

That's how it was initially done in the 2005 amendment, and, of course, we're looking here to update that with some more contemporary data sources, updated literature sources, and that's also what the five-year review does, and so it updates some of those things, and then it updates the maps. However, this amendment would then actually put that on the books, right, and so this would be the formal description passed by the council.

If we scroll down to Table 1.2.1, like I said, most of our species that we manage are going to fall within that group. However, there are a few species with which we do have a little bit of information broken out for juvenile and adult life stages.

Currently, I have some presence data, and, in some cases, I have an early juvenile and a late juvenile stage, and then an adult stage, and I don't have spawning adult information for any of these species, but these are the only species that we have some presence data with which we could use these more quantitative methods that I had outlined before, in the last presentation, the kernel density estimate, which just looks at the presence of the species, and then uses it kernel density estimation methodologies to then produce a core area, as well as an extent area.

Then, additionally, the other modeling technique would be the boosted regression tree modeling, and so that not only takes into account the species presence, but it also can model in some environmental covariates, to actually get at a better level of what, like David had described, the actual definition of EFH, and so getting some idea of functionality of that habitat into perhaps informing why those fish are there, and get a little bit of presence, and this is areas, perhaps, essential, and these are the reasons why, but these are the only species that those alternatives would apply, just due to data limitations, if that makes sense to everyone, hopefully.

Then, if we scroll down to the action, I guess I should also mention that the council has seen a version of this document, and they reviewed the purpose and need and looked at the actions a little bit, but, when I presented this information to them, I also went through some of the methodologies and things that I had given to you all, and so they haven't had a whole lot of time to really look through these alternatives.

This is currently how the alternatives are laid out. The alternatives reflect the methodologies considered, and so, for example, Alternative 1 would retain the no action, and so, basically, it would maintain the descriptions and identifications of EFH as they are in Amendment 3, which was published back in 2005.

Alternative 2 would consider the use of that habitat mapping and life history association tables, but it would be updated with contemporary data sources, and that is what I am currently compiling. I had a list of metadata the last time, but I will also provide the SSC some visualized maps and things like that, so that the committee can better see what those contemporary data sources are.

Then Alternative 3 would be using that presence-only methodology, that kernel density estimate, and we would have a cluster of points, and we would sort of draw an area about that, such that you can get an idea of core or extent area, and that's what those options below that mean, and so like Option 3a, the 50 percent kernel density estimate, would give you an idea of a core area, and so what's the smallest area with which 50 percent of the occurrences happen, up to 95 percent.

Then Alternative 4 would use that boosted regression tree modeling approach. Again, it's got sort of various levels of degree of precision with which you could apply that modeling technique and then pull out areas of core area, and so that 30 percent boosted regression tree, for example, would be sort of analogous to a core area in the kernel density estimate.

Like I said, you can imagine, if you did this for each species, for each life stage within that, you run into hundreds of decision points, which is less than ideal, and so the IPT has sort of been wondering how do we best present this, and, if we scroll down to the top of the next page, one of the thoughts that I had, perhaps, was, instead of looking at it species-by-species, and ending up with all of these points, was instead to look at it by life stage, because that's sort of the most precise characterization that is required for the identification and descriptions for EFH.

Right now, I've got that down as eggs, larvae, juvenile, adults, and spawning adults, and I guess we could have some discussion with the Habitat Division folks if any more life stages needed to be added, or perhaps consolidated, based on the data that we have available, but, when you do this, instead of going from several species, we've just these life stages to consider, and another thing is, for the various alternatives, we have some data for

those, but not for all, and so, for example, the egg life stages, there's enough to implement Alternative 1 and Alternative 2, and so that's sort of the habitat map clipping with the life stage, based on the literature. The same with the larval stage.

When you get into juveniles, there is enough information to implement the newer modeling approaches in Alternative 3 and 4, but only for those seven species that were outlined in that previous Table 1.2.1. The same thing goes for the adults and spawning adults, and there is only information available for those seven species.

In that case, those could be decision points, and so maybe, potentially, the document could have something where it's got ten or so decision points, and that's still quite a bit, but at least it reduces it from going species-by-species, and so that was my initial thought process.

Certainly, if anyone on the committee had any recommendations, as to perhaps how to approach the structuring of the alternatives in such a way that sort of still completes the goals needed for the document, or had any other comments on any other part of the document, I would certainly would welcome them at this time, Mr. Chair. Thank you.

CHAIRMAN NANCE: Thank you. Any comments? Lisa, you're right in the fact that it gets very complex quickly, with all the different species and all the different life stages that are in existence. Any comments on how to facilitate the document so that it's a usable piece of material? It doesn't look like there are any comments at this time. Anything else that you want to discuss? Lisa, does that end your presentation or what you wanted to discuss today? Luiz.

DR. BARBIERI: Thank you, Mr. Chairman, and, Lisa, thank you for that overview. Obviously, this is a lot to digest, and so I think you can understand why we're sort of still kind of looking at this and still trying to figure out what the next step is.

Dave, the same compliment goes to you, and I think that was a lot to go through, in terms of the description of all the components of the program and how it ties into other different agencies, and so thank you for presenting a summary that was actually understandable and really easy to understand.

Lisa, where does this go from here? Harry had asked the question, and it was up there in writing on the screen, regarding whether this, I guess, would come back to the SSC, or in what stage of the

council process is this?

DR. HOLLENSEAD: Thanks, Luiz, and so it's still early on. What I would like to do is to present this version of the document to the council at their January meeting and sort of give them an overview, similar to what I've done here today, and also introduce them to this table that we've got here within the alternatives, as a way to perhaps tackle this thing one bite at a time and try to limit the number of bites we're taking.

If, instead of looking at it by each species, do we just consider each life stage, and then that's how the rest of the subsequent chapters are sort of formatted, or do they just speak very broadly, where they have to, in terms or, perhaps, information on eggs and larvae, but can get a little bit more specific to juveniles or adults, and those may be parts of the life stage that have recruited to the fishery, and so there's some economic data, those sorts of things, and just to get a little bit of feedback on whether or not the council was sort of amenable to moving that forward.

If they are sort of okay with this sort of skeletal elements of the structure for the alternatives, and, if they felt like, hey, that's something they can kind of wrap their head around a little bit, the next step would be to come back to the SSC with those various data layers, both the updated contemporary data layers visualized, an example using gag grouper or perhaps a more expansive species, something like a shrimp species perhaps, something like that, so you can get like a bit of comparison.

So you would have an example of, hey, here's our raw data layers, and here is a life history table of our example species, and here's what the end product would look like, and so you can see all of those things, and then here is all of our presence locational points for gag grouper or brown shrimp, that sort of thing, and here is the kernel density estimate map and the boosted regression tree from that that those locational positions produce.

This is how, visually, Alternative 2 is different from Alternative 3 and is different from Alternative 4, and having that all in one space, most likely a webpage portal that you could toggle between, to get an idea of how things change throughout this process, and then the idea being those few species with which we have enough data to look at all four alternatives, and perhaps some decision points could be made there.

Like, for example, obviously, the boosted regression tree model is sort of the Cadillac of models, and it would probably maybe be

appropriate for the species and life stages that we have for red snapper, I'm thinking, for example, but maybe something like one of the coastal migratory pelagic species, and maybe that kernel density estimate, where it's mostly water-column associated, and so, therefore, just its presence might be sufficient enough to describe EFH in that way.

That would help, I think, inform a little bit of those decisions, between do we pick Alternative 2, 3, or 4 for those that we have the data for, and most of the species that we manage will fall into Alternative 2, simply because of data limitations. We don't have the data available to run these models, or any presence data associated with them, and all we have is some literature that says, hey, these are the type of habitats that they hang out in, and then we have spatial data layers that say, hey, that's where you can find this habitat, and so that's where most of your species are going to fall under, is this Alternative 2.

I think where the sticking points get a little bit is, for the species that we have information enough to construct models to inform Alternative 3 and 4, how do you then pick between that, and you can see where the council would probably lean heavily on the SSC at those sort of crossroads, is my thinking for the next steps, and so I am hoping to have that portal, like I said, that sort of visualization, for these sort of stepping points, so you can see how the description of EFH changes between the alternatives for review for the SSC in March, as well as the raw data, the metadata to go with it, and so, if any SSC member has some information on a more contemporary source of those data, or something like that, they could bring that up then, and we could include it before we get too deep into the document.

I think that's one of the things that I definitely want to avoid, is let's say the SSC is ready to go, and so is the council, on picking an alternative, but then, later, something comes up, in terms of actually -- You know, you may have missed this in this step, and this changes things a little bit.

I know, at some point, we have to put a pin in something, and I know that data is always being collected all the time, in order to progress the document, but I certainly wouldn't want to miss on something that may be out there right now while we're in this beginning process, and so those are my thoughts for moving forward.

DR. BARBIERI: Mr. Chairman, if I might.

CHAIRMAN NANCE: Yes.

DR. BARBIERI: Thank you, Lisa, for that, because I think this helps a lot. It was nice for us, today, to get this broad overview of the different components of how the process goes and then how this draft regulatory amendment is being built and some of the criteria and different data that will be available for different species, but, like you mentioned, I think it would be easier for us to weigh-in in more detail as we go through those decision points, that you might engage us with review of specific points that you want to discuss, or decisions that you are trying to make, on how to move forward. I appreciate your review here, Lisa, and thank you.

CHAIRMAN NANCE: Thank you, Luiz. It seemed like, at the June meeting, and was it June when we went over this, and we did the four different alternatives, and I think we provided -- Since Alternatives 1 and 2 seems to be usable by all the different species, but then we looked at Alternatives 3 and 4 and gave some advice back about what we needed to see with regard to the different models, and so is that kind of where we're at now, is to take a couple of different species and use Alternative 3, and show the results of that, and then use Alternative 4 on those same species, or some other species, and see the results of those, and is that kind of where we're heading for our March meeting?

DR. HOLLENSEAD: Correct, yes. In an ideal world, I would be able to have something where all the spatial projections are the same, and so it would be like an apples-to-apples comparison, and, then, as you sort of move through the different alternatives, you might even get a percent change in area covered, and so I may not get down to the point where you would be able to see small regional differences, but you could at least get an idea of visually, and then perhaps get a percent change of coverage of how those would look between those, to help sort of inform some of those decisions between one or the other, and, yes, that's what I would like to do.

CHAIRMAN NANCE: I think, from my perspective, I think that would be good to see. We will, obviously, have to use species that are data rich, in order to run some of those higher-level models, especially for Alternative 3 and 4, but it would be interesting to see the differences that those alternatives make in the essential fish habitat that's being viewed for each of those species.

DR. HOLLENSEAD: Yes, correct, and, thinking back to Luiz's point, I appreciate the SSC taking the time and allowing me to present today, and it's a little bit of a ten-thousand-foot view of this, and I guess I just wanted the SSC to kind of keep this in their back pocket, because certainly there is a bit of a rabbit hole

that you could jump down for some of the species where we have a lot of -- Some good data to do these models, but keeping in mind that we've got to pull back out and put this in a document that is going to have decision points that will have to be selected as preferred, and so, like I said, I don't want to get into a situation where we end up with hundreds of decision points, and so I certainly appreciate the committee just looking at this, and we can get into what I also consider the fun stuff in March, and kind of tinker around with some of these data layers and see what they look like.

CHAIRMAN NANCE: I think that would be great to see, for sure. Thank you. Any other comments from the SSC members? Lisa and David, thank you for those presentations. They were both excellent. Thank you. With that, it looks like we are kind of wrapping up for today. At this point, I will start the public comment period, if we have any comment from the public, and we'll be able to entertain those at this point in our meeting. Michael, we will go ahead and take your comments, please.

PUBLIC COMMENT PERIOD

MR. MICHAEL DREXLER: Good afternoon. This is Michael Drexler with Ocean Conservancy. Thank you, Chair and SSC, for moving the public comment format. It often felt like it was designed to be as ineffective as possible, and this shift is a big improvement, and so thank you for that.

Also, thank you in advance for all of your careful considerations to the Great Red Snapper Count items this week. As you consider modifying catch advice for red snapper, I would like to remind the SSC of two important points that often get lost in the red snapper discussions.

The first is that red snapper is still in a rebuilding plan. The rebuilding plan was most recently assessed based on SEDAR 52, and the ABCs were established to meet the rebuilding requirements of the MSA and rebuild the stock by 2032. Any ABCs put forward by the SSC need to demonstrate that target will be met.

An interim analysis using the bottom longline survey is able to do this, as it modifies the SEDAR 52 projections. However, interim advice based on the Great Red Snapper Count cuts that tether and is unlikely to be compliant with rebuilding requirements.

Second, the Great-Red-Snapper-Count-informed assessment is not an interim analysis. The terminology may not have been intentional, and maybe it was, but the classification of the Great Red Snapper

Count as an interim assessment has the effect of suggesting this is a minor tweak in red snapper management advice and skirts a full peer review by SEDAR and CIE reviewers.

There is still outstanding concerns raised with the Great Red Snapper Count beyond the supplemental analysis that you'll be seeing on the agenda tomorrow, and this should be reconciled. Namely, that the eastern and western estimates are not comparable and should not be combined, due to different sampling methods.

The proper place for this research is a SEDAR stock assessment and not an expedited interim analysis. An integrated approach will allow you to re-estimate productivity, fishing mortality, biomass, and integrate the Great Red Snapper Count.

Not doing this throws out forty years of historical data collection and trends. Previous catch advice from the Great Red Snapper Count was fraught with political pressure to increase quotas, based on unfinished science. This pressure was further amplified by the council, resulting in the resignation of the former SSC chair and effective firing of the new chair for allowing ABC advice not based on the Great Red Snapper Count.

This pressure is a clear violation of the Scientific Integrity Report published by the White House Office of Science and Technology, which was released today. I hope the process is not repeated again and that the SSC can make a recommendation without undue influence.

Meanwhile, the bottom longline index update, which has been surveying unconsolidated bottom habitat for over twenty-five years, suggests the stock is declining and is failing to make adequate rebuilding progress. Thank you.

CHAIRMAN NANCE: Thank you. Any comments from SSC members to those point? Michael, thank you for those comments. I appreciate those. Bob.

MS. ROY Bob Zales, you will have to unmute your line to speak. Bob Zales, you should just click your microphone button until it turns green, and that should unmute you. Dr. Nance, why don't you move on to Ashford Rosenberg for now?

CHAIRMAN NANCE: Okay. Thank you. Ashford Rosenberg, please.

MS. ASHFORD ROSENBERG: Good afternoon. Thank you. I'm Ashford Rosenberg with the Gulf of Mexico Reef Fish Shareholders Alliance. I want to echo appreciation for changing the public comment format

for these SSC meetings. I think this is going to be a lot more accessible and fruitful to your discussions, and so just a big thanks, and I appreciate your flexibility on that.

I also wanted to express thanks to the SSC members and to the scientific community and to those who served on the NAS committee for the LAPP report, and I appreciate the SSC reviewing that today. Generally, I also wanted to express support for similar opportunities for the SSC to look at economic analyses of commercial fisheries and the impacts that trickle into the supply chain, and I think, when we see economic analyses in an amendment and in other proposed management changes, sometimes the full scope isn't seen, and so, if there's an opportunity for the SSC to have that done, or if there is ways to incorporate new or more economic data into these analyses, I think that could be very fruitful.

I also just wanted to express some general support for that cooperative research discussion on the red tide, and the work that's happening over there is really impressive, and I think it's always encouraging to see commercial fishermen and scientists work together, and that's something that the Shareholders Alliance also supports, and so we appreciate you looking at that research today.

Lastly, just very quickly on red snapper, as you consider the Great Red Snapper Count and the information coming out that tomorrow, I just wanted to share that there was public testimony from commercial fishermen at the last council meeting expressing some concern about the stock and seeing a lot of localized depletion, and so, as you look at that data, and I know that the bottom longline survey does show a downward trend, but we're hearing that on the water as well, across the Gulf, and so, from a commercial fishermen's standpoint, the stock is definitely better than it was, but there is starting to be some troubling signs on the water, and so I just wanted to raise that with you guys. I appreciate your time, and I'm happy to answer any questions.

CHAIRMAN NANCE: Thank you so very much for those comments. Any SSC member have comments or questions? We certainly greatly appreciate all of those comments, and it's nice to be able to hear from you each day, so that, as things progress, we're able to keep in touch, and I think that's the purpose of certainly the public comment period.

MS. ROSENBERG: Thank you so much. I appreciate it.

CHAIRMAN NANCE: You're very welcome. Bob, were you able to get unmuted?

MS. ROY: Bob is there, but it looks like he's having trouble unmuting. An option would be to switch to telephone audio, Bob. Dr. Nance, give us just a second. We're going to try and reach him another way.

CHAIRMAN NANCE: Okay. We'll do that, and we have a few moments to spend, and so that would be great to hear from Bob.

MR. BOB ZALES, II: Bob Zales, II, representing the Southern Offshore Fishing Association and also the National Association of Charter Boat Operators. In the discussion about the LAPP stuff, and I appreciate Lee's talk on that, on that LAPP thing, as everybody should know, it's not just about the difference in rec and commercial.

It has to do with the internal sector on the commercial side, because part of the unintended consequence of creating the IFQs, especially in the red snapper fishery, was, after the first five years, when that fishery was limited only to fishermen, the trade and sale and whatnot amongst themselves, but, after five years, in the Fisheries Service's infinite wisdom, they opened it up to anybody throughout the world that wanted to buy IFQ shares, and you didn't have to have a boat, and you didn't have to fish, and you didn't have to do anything, and all you had to do was have some money and a telephone, and you could buy the quota, and then you could lease it out one day a year and knock down several hundred thousand, or more money than that, and that created significant problems in the fishery, except when it came to leasing.

It drove leasing prices up, and it drove clearly the price of the quota itself up, so that plain old, regular fishermen couldn't really afford to get into the fishery, and so what you also have is, because of the increase in the red snapper stock, you have fishermen like the longline red grouper fishery, and they encounter red snapper far more often now than they ever did in the past, and so you've got these guys out there that can't afford to lease the quota, and so your discards, and discard mortality, has increased over time because of that, because these fishermen -- It's much more profitable for them to be able to land a fish that might pay a dollar, or two-dollars, a pound, versus leasing something, on a red snapper, where they're only going to clear fifty-cents to a dollar or a dollar-and-a-half a pound, and it doesn't make economic sense.

Although they don't want to discard these fish, they have to do that, and it has also affected their catches of red grouper, because they try and get away from red snapper to catch the red

grouper, and that has created a significant problem, which also created a problem in the local fishing communities, with fish houses being consolidated into groups where the fish houses buy up some of the quota, and they have boats, and so they're going to offer leasing to other boats that sell specifically to them, and so the real small fish houses, the mom-and-pop places out there, that have traditionally been able to purchase and sell red snapper from fishermen, have diminished, and so it has created the problem.

The key problem is the problem that you have with what we call the haves and have-nots, and so you've got these fishermen, or not fishermen, but you've got these shareholders who own quota who have absolutely no dog in the hunt, and the council is trying to address that, and hopefully we'll get that addressed and get it to where it will be a more fair representation and get back to the original concept of the IFQ, to where that fishery -- Those IFQs were supposed to be to help the fishermen be able to fish when it was profitable for them, when the weather was best, when everything was best for that fisherman to do, rather than having to worry about the economics of it and trying to get in there.

Another key problem is, when you try to new entrants into this fishery -- If you can afford to buy red snapper, you don't need to be in the commercial fishing business, because you're pretty well off, and so you've got that in there.

Then another part of the thing is, with this Great Red Snapper Count that we've been dealing with now for, what, about a year and three or four months into it, since it was released, that it was going to have all these great big red snapper out in the Gulf of Mexico, and we've been battling back and forth with this whole thing, and hopefully, at this meeting, you all will be able to finally get to some kind of point to where you can provide recommendations to the council to do something to let's get off the ball and do something for this red snapper fishery that's out there.

That stock assessment is coming up here before too long, and it looks like we're just kind of kicking this can down the road until we get to that stock assessment before we can get anything substantial done, and, in the meantime, you've got fishermen, both commercial and rec, that are sitting here scratching their heads and saying, okay, we see all this great fantastic data, but where is the benefit for the fishermen, and, right now, there is none.

Other than that, that's pretty much it for today. Thank you all for doing what you're doing, and I appreciate you letting the public testimony be like it is now, to where it spreads it out, so

you don't have to wait until the final end of the thing, and, if anybody has got a question, I will be glad to try to answer it.

CHAIRMAN NANCE: Bob, thank you so much. It's always great to hear from you. Any questions or comments for Bob? Okay. I appreciate all those public comments we had this afternoon. Tomorrow, we will start at 9:00 a.m., Eastern Standard Time, and we'll get into red snapper management, and so we look forward to everybody being on tomorrow, and thanks for everybody's input today. See you tomorrow.

(Whereupon, the meeting recessed on January 11, 2022.)

- - -

January 12, 2022

WEDNESDAY MORNING SESSION

- - -

The Meeting of the Gulf of Mexico Fishery Management Council Standing and Special Reef Fish, Special Socioeconomic & Special Ecosystem Scientific and Statistical Committees reconvened on Wednesday morning, January 12, 2022, and was called to order by Chairman Jim Nance.

CHAIRMAN NANCE: Good morning, everyone. We've got a full day of presentations and discussions today. We'll go ahead and start out with Item Number XI, which is Status Update of Red Snapper Management and Outstanding Council Motions, and I think Dr. Simmons is going to lead this discussion for us.

STATUS UPDATE ON RED SNAPPER MANAGEMENT AND OUTSTANDING COUNCIL MOTIONS

EXECUTIVE DIRECTOR SIMMONS: Good morning. Thank you, Mr. Chair. I have just a couple of slides, just to kind of put in perspective the rest of the agenda for today and why those materials are kind of organized the way they are for the SSC to review.

Just as a reminder, and I think a lot of the SSC members who were reappointed may recall, from the March/April SSC meeting in 2021 last year, we reviewed the draft Great Red Snapper Count report, as well as some NMFS bottom longline interim analysis catch advice and looking at various scenarios from the Science Center during that meeting.

At the council meeting, the following council meeting, in April of 2021, we had to take that catch advice and quickly develop a framework action that modified the ACLs for Gulf of Mexico red snapper, at that meeting, and that was done very quickly, and I think that resulted in an increase of 300,000 pounds, and this has been transmitted to the agency. It has not been approved by the Secretary yet, and, to my knowledge, we have not seen a proposed rule for this document.

At the same meeting, the council also reviewed and took action on the recreational data calibration and recreational catch limit calibrations, and this was also reviewed by the SSC, I believe at several meetings, in coordination with the Office of Science and Technology and the working group's efforts with the states.

This framework action was requested by the council to be implemented in 2023, due to some of the issues with the federal system and concerns about outliers in the small states and calibration to that federal program. This document has also been transmitted, and it has not yet been implemented by the Secretary, or rejected.

At that very same meeting, after these difficult deliberations and actions on these amendments, or these framework actions, the council discussed the fact that the Great Red Snapper Count that was reviewed by the SSC was a draft, and it wasn't a final draft, and we knew, from Dr. Stunz and his team, that they were going to go back and address some of these peer-review comments, to the best of their ability, and I think there was a lot of anticipation that this would come back to the SSC, later in 2021, and that did occur in September.

Along that discussion, during that discussion, there were also items that came up that were not able to be discussed during the March/April SSC meeting, such as some other fishery-independent indices of abundance that might give us a better idea about the red snapper stock in the Gulf of Mexico, and not only the NMFS bottom longline survey.

All of this, if you read the minutes, was discussed during the April 2021 meeting, and that resulted in the council passing the following motion, which was to request the SSC consider new information and the revised report, the Great Red Snapper Count report, to provide catch advice for red snapper for 2021 and beyond, and, as part of the discussion, the SSC should consider the existing ABC Control Rule, as well as the National Standard Guidelines, and that motion carried with no opposition.

Just to kind of remind everybody, that's why we're revisiting this again, and that's why the items that you see throughout the day on the agenda have been set up this way, and so, Mr. Chair, thank you.

CHAIRMAN NANCE: Thank you very much for that synopsis, and I think it's very well laid out, and we'll have a -- I'm just going to go through the agenda real quick here, because Ryan Rindone is going to give us a summary of SSC discussions and recommendations on the Great Red Snapper Count report, and Dr. Stunz and Dr. Patterson are going to give us a reanalysis of Florida natural unconsolidated bottom.

Dr. Siegfried, from the Center, is going to give us the discussion of results of a post-stratification analysis by the Southeast Fisheries Science Center, and the Great Red Snapper Count team for Florida, and we're going to then have Dr. Switzer is going to give us a -- It looks like the fishery-independent indices update for red snapper.

Then Dr. Walter, from the Center, is going to give us a review of the estimated commercial effort over uncharacterized bottom in the Gulf of Mexico and also a review of estimated recreational effort over uncharacterized bottom, and so, really, it's a full day of presentations, and I think Dr. Simmons gave us a good outline of what we need to be thinking about while we're listening to these presentations, so we can have great discussion and be able to make some formative motions. Lee, please.

DR. ANDERSON: Thank you. I have two questions, one for Carrie, and you said there are two things that are waiting for NMFS approval, I guess, and can you tell me the reason for the delay? It is it bureaucracy, or have they stated any hang-ups?

The second question, and I don't know who it's for, but just for my background, we're saying we want some information to make a new catch advice, and what is the existing catch advice, if we do nothing? What is the status quo that we are trying to work against, or to change?

MR. RINDONE: Mr. Chair, I can take them both.

CHAIRMAN NANCE: Thank you, Ryan.

MR. RINDONE: As far as why implementation may be delayed on the other two framework actions, that's really a question for the Southeast Regional Office, and they are best equipped to answer that. I do know that they have been vocal, during the council

meetings, with respect to the calibrations document and its delayed implementation, of the measures that are recommended therein, that that delay they don't think is in line with Magnuson, and so taking a further look at that could be part of that delay, but the Southeast Regional Office had also made clear, previously, that they didn't want to implement the ratio calibrations separate from any modifications to the red snapper catch limits, but, beyond that, the ball is their court to explain that.

As far as what the catch limits are, currently, the regulations that are on the books are an overfishing limit of 15.5 million pounds and an acceptable biological catch of 15.1 million pounds. The modified catch limits from the SSC meeting are -- I think it's 25.6 million pounds for the OFL and 15.4 million pounds for the ABC, and that is the framework action, or one of them anyway, that hasn't been implemented yet, and so we're presently still operating under that 15.5 and 15.1 catch limit scenario. Did that answer your questions?

DR. ANDERSON: Yes. Thank you.

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

MR. ADRIANCE: Thank you, Mr. Chair. Mine is another technical question, and so, given that those two things are in limbo that Carrie mentioned, and the council motion asked for a reconsideration of advice from 2021 and beyond, are we expected to make a retroactive sort of advice, or will it just apply for 2022 forward?

MR. RINDONE: Mr. Chair?

CHAIRMAN NANCE: Yes, please.

MR. RINDONE: Any catch limit recommendations that the SSC makes are made in real time, and nothing is applied retroactively, and so we already have a finalized and transmitted framework action to modify the catch limits based on the SSC's previous motion to modify those limits, and this kind of gets into the next agenda item, the discussion about what you guys have done so far.

That's already put out there to be put on the books, and NMFS will either accept it, modify it, or not accept it. Any modification will come back to the council for further consideration though, and, if you guys recommend something here today, or into tomorrow, or whatever the situation may -- However it may pan out, for how to set up a catch limit analysis for your March meeting, then whatever comes from all of that effort, and all of that discussion,

that would be a new catch limit recommendation that would -- The council would then have to consider it, and, if it moves forward with a framework action for that and transmits that, then that would replace the one that has already been transmitted, and so nothing is put in place retroactively. It's all in real time.

CHAIRMAN NANCE: Does that address your question, Jason?

MR. ADRIANCE: Yes. Thank you.

CHAIRMAN NANCE: Thank you. Ryan, thank you for that. Peter Hood, please.

MR. PETER HOOD: Can you guys --

MR. RINDONE: We could for a second.

CHAIRMAN NANCE: Peter, while you're fixing your microphone, Doug, go ahead.

MR. GREGORY: Thank you. I understand Jason's question, because that motion said for 2021 forward, and my question is -- Or not question, but my understanding is that the council is asking us to look at both OFL and ABC, and you might recall that, back in April of 2021, OFL was much higher than ABC was, because the two different methods were used for either one. The Great Red Snapper Count was used to set OFL, and the interim assessment, using the bottom longline indices, was used to set ABC, and so the council is asking us to look at both of those, and I guess we'll do that in March.

CHAIRMAN NANCE: That's correct, Doug, yes. The action we took on both of those, the council will ask us to readdress those two items, yes, but that's why we're going to have all the presentations and discussions today and then set up for that meeting in March, depending on what we come up with today and tomorrow.

MR. GREGORY: Thank you.

CHAIRMAN NANCE: Peter.

MR. HOOD: Thanks. I just wanted to indicate that what we've done with the two actions is we're combining them into one rulemaking, and we're proceeding with that rulemaking, and, right now, if we can, we're going to try to get the proposed rule out sometime this spring, and we'll be taking final action later in the year, and so we're not really dragging our feet or anything like that, and we're

trying to go through the normal process to get a rule out, and I just wanted to make that clear. Thank you.

CHAIRMAN NANCE: Peter, thank you for that input. Roy, please.

DR. CRABTREE: Ryan, just in terms of timeline, so the SSC will meet again in March, and, if we did come up with a new catch level at the March meeting, that would go in front of the council in April, and is that correct?

MR. RINDONE: That's correct, and I guess, just for all of you, since we're on this topic and Dr. Scyphers asked me last night, I am looking March 8, or the week of March 7, preferably probably March 8 through 10 for the March meeting, and I will be sending you guys a doodle poll about that, and agenda items for that will include any subsequent analysis, review and outfall from today's agenda items about red snapper, the red grouper interim analysis, and the review of the NAS LAPP study.

DR. CRABTREE: Okay, and so we get -- If something gets in front of the council at the April meeting, and then I guess the council has a June meeting, and assuming it takes two meetings for the council to take final action on a framework, then it goes to the Fisheries Service, and they have to go through a proposed and final rule, and I really think, realistically, the timing of this, that probably anything we do would go into effect in 2023, and it's probably possible to get something in place late in 2022, but, most likely, it would be effective in 2023.

MR. RINDONE: Dr. Crabtree, I would agree with that. I don't see us getting anything nailed down, and through all the hoop jumping, before the end of the year, before the end of the calendar year.

CHAIRMAN NANCE: Thank you, Ryan. Thank you, Roy. Benny.

DR. GALLAWAY: Thank you, Jim. I just wanted to point out that we are preparing a comprehensive response to all the comments and suggestions that were received from our presentation of the Louisiana data, of the Louisiana red snapper estimate, and it's my understand that we will be allowed or can present that in the March meeting, and is that true, and will that be considered as part of the process? Thank you.

MR. RINDONE: Sorry, Dr. Nance. I forgot, and I do have time carved out for LGL to present their response to reviewer comments, their revised analysis, and also the sample design presentation that was requested by the SSC the last time this item was talked about, and so that's the other item.

CHAIRMAN NANCE: Okay. Perfect. Thank you. Dr. Simmons.

EXECUTIVE DIRECTOR SIMMONS: Thank you, Mr. Chair. I guess, back to something Peter said, just to make sure we're clear, and it sounds like that the final rule for the 300,000-pound increase for the ACL for red snapper is going be tied to the calibration amendment, and so that probably won't be realized until late 2022 or early 2023, and is that correct?

CHAIRMAN NANCE: That's what it sounded like to me. Peter.

MR. HOOD: That's what we're looking for.

CHAIRMAN NANCE: Does that take care of that, Carrie?

EXECUTIVE DIRECTOR SIMMONS: Okay. Steven, please.

DR. SAUL: Good morning. Thank you, Mr. Chair. I was just curious how the timeline, regulatory timeline, kind of would fit into some of the updated analyses that we heard yesterday, and that we'll hear today, and kind of how those update -- Then, also, just to clarify what I heard a few minutes ago, and so are we -- I guess I have a second question, and would we be expected to use these sort of updated analyses to develop, and, again, just to clarify, but updated catch advice for this calendar year, or would that be then for 2023? Thank you.

CHAIRMAN NANCE: From my perspective, we would be using the presentations today to recommend new catch advice. That new catch advice would then go through the process and be implemented probably in 2023.

MR. RINDONE: There is no catch advice that's being expected to be recommended from today. What you guys are being asked to look at today is the totality of available information, as of when we organized this meeting, as it's associated with the Great Red Snapper Count in response to the council's motion, for you guys to look at all of this stuff and to inform the Science Center of how you would like any subsequent catch analysis for red snapper to be parameterized.

Generally, things like which estimate of absolute abundance do you think is most appropriate, the percent utilization of the uncharacterized bottom, the application, in part or in full, of post-stratification that's going to be discussed by Dr. Siegfried, and looking at the NMFS bottom longline and the SEAMAP video survey data and the trends therein and seeing how that plays into how you

think about just scaling anything, and so there's a lot to go through today, and I feel like we're kind of touching on little bits and pieces of this stuff as we have these discussions, but all of this is to set up what to tell the Science Center to do for the March meeting, as far as any catch analysis is concerned, so that they're not doing seven different things and hoping that they did the one that fits the bill for what you guys wanted to see.

CHAIRMAN NANCE: Thank you, and I think the key is we need to listen to each of these presentations today and have discussions about those presentations and then, after those presentations in totality, be able to come up with our recommendations to the Center for analysis for our March meeting to make the catch advice, and so I think that's what we're trying to accomplish today, and so it's good, and I think this is a great outline that the staff has put together, that will allow us to be able to do that as we go through these presentations. Roy.

DR. CRABTREE: I think this is a path forward, and I'm a little concerned -- For example, I think I heard Benny say that they would present a response to the concerns with their Louisiana estimate at the March meeting, and so one thing I think we've got to be careful of is that we come into the March meeting and we make a decision about what numbers we're going to use, and, well, then those are going to have to be taken by the Science Center and pulled into these interim analyses that we've done, and I don't know quickly they can redo all of that, and I hate to get to March and have things being done on the fly, without much time to think about it or look at it.

To the extent we could have all of that squared away and look at that before we come in in March, so that we would know that, if you go with this estimate, here's how it affects things, and that would be very helpful, because, if we do come in in March, and we end up changing a lot of numbers, we're going to be scrambling, as we all know, and so, Ryan and the Science Center, to the extent we can get all of these things done and get it to the SSC in time to look at it, prior to the meeting, that would certainly increase the odds that we're able to get this done.

MR. RINDONE: Roy, if we have nine SSC meetings, I'm sending you a bill.

DR. CRABTREE: Come on. The more the better.

MR. RINDONE: I think I still twitch a little bit from that year. Anyway, we'll have the information from Dr. Gallaway's group in short order, to be able to make available with plenty of advice

notice for you guys to peruse, very similar to how we did with the follow-up information from the Great Red Snapper Count, and we got all of that -- We got the final report posted I think at the end of June for that, and you guys reviewed it in September, and so there was plenty of time for digestion, and so we'll make all of that stuff immediately available, as soon as possible, and I will work with our admin team here to get that page built out as soon as possible.

As far as the order of operations, I will work with the Chair and Vice Chair on the development of the agenda to set all of that up, and you guys will have, at your fingertips, whatever information that we have.

CHAIRMAN NANCE: Perfect. Benny, to that point, please?

DR. GALLAWAY: I put my hand down, and I think Ryan answered it, and we have basically completed most of the difficult part, and it's just a matter of writing it up, and so we'll get it in and available for review as soon as possible.

CHAIRMAN NANCE: Okay. Thank you. Doug Gregory, please.

MR. GREGORY: It's two things. Originally, I was curious, given that we're talking about implementation timelines, and when can we expect to see the SEDAR 74, and I think that's what it is, report from the research track, and how does that fit with the timelines we're talking about now?

That was my initial question, but, also, given what Roy said, since we haven't concluded what Louisiana data to use for the Great Red Snapper Count, how can we ask the Science Center, at this meeting, to provide us a certain amount of data? It seems like that's what we would do at the March meeting, and then make a conclusion at the subsequent meeting, and so, one, when do we expect the get the research track report, and, two, is this timeline kind of too ambitious? Thank you.

MR. RINDONE: Mr. Chair?

CHAIRMAN NANCE: Yes, please, Ryan.

MR. RINDONE: So the council's motion is specific to the Great Red Snapper Count data. As far as the SEDAR 74 research track being completed, its completion, at this point, is actually inconsequential to this, because the research track does not generate management advice. The subsequent operational assessment, for which you guys will review and have to approve

terms of reference for before it can begin, isn't expected to start until 2023 sometime, at the culmination of the completion of the research track.

I would not anticipate the council, or you guys, reviewing that operational assessment's results until probably sometime in 2024, and the council not taking final action on anything resulting from it until sometime after that, and then you have a minimum six-month regulatory window for NMFS for doing the proposed and final rule packaging and implementing the rule. The results that come out of SEDAR 74 are -- They seem far off in the distance now, and it's probably not as far as we think it is, but they are still several years out from where we are right now.

MR. GREGORY: If I may, Chair?

CHAIRMAN NANCE: Yes, please, Doug.

MR. GREGORY: Real quick, I am more interested in the research track report, rather than the operational assessment, because it's my feeling that the process of the research track will more fully vet how to incorporate the Great Red Snapper data into an assessment, to provide catch advice, and it's much more involved, and so that was my concern, that we had the benefit of that analysis from the research track people, because we have now been presented with some video surveys that are the result of the research track, and so what other information that's being developed in the research track would be helpful to us, and so I'm just nervous about going forward quickly without more input. Thank you.

MR. RINDONE: Mr. Chair?

CHAIRMAN NANCE: Yes, please.

MR. RINDONE: There are no results from the research track yet. A lot of these indices have been developed in preparation for it, but they have not been analyzed in total with everything else that's been provided and the interplay between those indices of abundance and perceptions about total and spawning stock biomass levels, and like none of that has been completed yet, and so we shouldn't expect to see anything from any of that until into 2023.

From a timing standpoint, that's all well off in that direction, and I feel like we're -- We keep getting into the next agenda item, and so, with your permission, I would like to just go ahead and do that, because I feel like there is answers to some of these questions about maybe where we came and from where we are that are answered by that, and this is just a discussion thing, and I don't

have anything to present to you guys, because I presume that you've already gone through all of the background information that's been provided.

CHAIRMAN NANCE: Ryan, before you -- Let me have Jason ask his question, and then we'll move on to your discussion, and I think that's well taken. Thank you. Jason.

MR. ADRIANCE: Thank you, Mr. Chair, and hopefully I won't stall this any longer, but it's just more that I want to get a clarification, because I think, in the round-and-round, I may have gotten confused again, or maybe I need another cup of coffee.

We had this previous catch advice that was the April 2021 motion to reconsider, but then all these other things have happened, and the timing of this, I guess, has just not worked in our favor, and so that other catch advice we gave is essentially going to disappear while we move forward through this other process, and do I understand that correctly?

MR. RINDONE: It's all at the pleasure of the council, Mr. Chair, and so the current catch limit is the 15.5 million pounds whole weight for the OFL and 15.1 million pounds for the ABC. The SSC recommended an OFL, based on the Great Red Snapper Count, of 25.6 million pounds whole weight and an ABC of 15.4 million pounds whole weight, based on the NMFS bottom longline survey, at its March/April meeting.

Then you guys reviewed the finalized Great Red Snapper Count report in September, and you didn't have any other changes that were explicit, as far as the review is concerned, but you do recommend that it go through the SEDAR process, to be considered as part of a larger, global examination of red snapper in the Gulf of Mexico.

I can have that -- I can have Bernie pull that motion up here in a minute, and so that's kind of where we are now, and so, if you guys recommend something else in March, or at some point after March, whatever the situation is, or not at all, or whatever it is that you do -- If you recommend any new catch limits for red snapper, they still have to be reviewed by the council and implemented.

The council cannot exceed your ABC recommendations, and so, if whatever is on the books now doesn't exceed the ABC recommendations, then the council can do nothing, if it chooses to, or it can accept the ABC recommendations and modify the ACL, the annual catch limit, accordingly, but all of that changing of the annual catch limits is essentially at the pleasure of the

council, unless the current annual catch limit exceeds your recommended acceptable biological catch.

CHAIRMAN NANCE: Okay. Let's go ahead and hold off questions right now, and I'm going to let Ryan go through your summary of SSC discussions and recommendations, and then, following that, which is Item Number XII, then we'll take questions again, and I think, like Ryan said, a lot of the questions and concerns probably will be addressed in his remarks, and, if not, we'll be able to discuss those at the end of that, and so, Ryan, why don't you go ahead?

SUMMARY OF SSC DISCUSSION AND RECOMMENDATIONS ON GRSC REPORT FROM MARCH/APRIL 2021 AND SEPTEMBER 2021 MEETINGS

MR. RINDONE: Thank you, Mr. Chair. We kind of touched on some of this, and so you guys met in March and April of 2020, or 2021, excuse me, and the scope of work there is wrong. You met in March/April of 2021, and we had a rigorous peer review, including SSC members and Gulf Council-contracted independent consultants, to examine the Great Red Snapper Count.

This was a review unlike anything that the SSC has had put in front of them in recent memory, and this review resulted in numerous recommended modifications to the work that was done for the Great Red Snapper Count. That team addressed almost all of these modifications, and there were some that they were not able to address, for reasons related to how the data may have been collected and just things of that nature that you all are familiar with in having your own work reviewed.

The results of the modified final Great Red Snapper Count report were presented in September of 2021, but, specific to this meeting, to the March/April meeting, you guys recommended an overfishing limit of 25.6 million pounds whole weight, based on the results of the Great Red Snapper Count report, and you recommended an acceptable biological catch of 15.4 million pounds, and so the SSC defines the overfishing limit for Gulf of Mexico red snapper for 2021 as 25.6 million pounds whole weight in CHTS, Coastal Household Telephone Survey, units, based on the Great Red Snapper Count interim analysis, using 13 percent of the unconsolidated bottom and using a three-year average at F 26 percent SPR, which is the FMSY proxy for red snapper, on the structured bottom representing the exploited fishery.

Then the next motion for the acceptable biological catch, the SSC defines the ABC for red snapper for 2021 as 15.4 million pounds whole weight in CHTS, based on the Science Center's interim analysis using the NMFS bottom longline survey, which used a

terminal year of 2019 and the harvest control rule's five-year moving average.

In this particular instance, you used one set of data for the OFL, and you used another set of data for the ABC, and so, after this meeting, the Great Red Snapper Count folks took all the peer review comments from the SSC and from the independent consultants and they reworked the study, and they generated their final published report, which came out in June, the end of June 2021, that you guys reviewed in September of 2021.

If you scroll on down to -- It's only twenty-eight pages, and it's not so bad. These things are becoming novels. I am just going to put in there that Roy and Doug asked a lot of questions, next item.

CHAIRMAN NANCE: But I will tell you though, Ryan, that, even though they're big, they're good for information.

MR. RINDONE: Thank you, Mr. Chair. Review of the Finalized Great Red Snapper Count Report, and so the findings of the revised report were discussed by the co-PIs, and there's a motion down there that I was going to read to you guys.

You guys recommended that the design and the data from the Great Red Snapper Count are suitable for consideration in SEDAR 74, and these data and everything have already been submitted to the Science Center for that assessment process. The SSC also recommends further evaluation of the estimates of absolute abundance and the methods and analysis used for estimation of the red snapper population. That was the final motion that you guys have made with respect to the Great Red Snapper Count.

As you can see in the paragraph that precedes that motion, another thing that you guys stated is that you were clear that the Great Red Snapper Count and the LGL study should be treated completely separately and not be directly compared, and so, to the degree to which you want to walk back the assertions that several of you had made during that meeting, and, again, you can review the verbatim minutes from the September meeting to see those discussions in greater detail, and you guys would need to discuss that again, or at least I think it would be prudent to discuss it again, to make sure that the record is well developed as to whatever your reasoning may be for whatever decisions you might make.

That is essentially where we are today, and we have -- In response to the March/April meeting, the council developed that framework action that Dr. Simmons talked about, and we've transmitted that, along with the ratio calibrations, to NMFS. As Mr. Hood said,

they're working on those right now, and so, obviously, they're not implemented yet, but rulemaking is its own process, and so we just have to be patient for that, and in front of you today is all the information that has been requested that you take a look at, everything that we have available to us today for you to look at, with respect to the Great Red Snapper Count, which was the subject of the council's motion. Mr. Chair.

CHAIRMAN NANCE: Thank you for that synopsis. Now questions? Joshua.

DR. KILBORN: Thank you, Mr. Chair. I am relatively new to this whole management process here, and this is my first stint on this committee, and so I am wondering if somebody could help me understand, and how does everything that we're talking about now reconcile with the fact that snapper is supposed to be in a rebuilding plan?

MR. RINDONE: Mr. Chair?

CHAIRMAN NANCE: Yes, please, Ryan.

MR. RINDONE: We can't pull red snapper out of a rebuilding plan without a stock assessment, and we need a stock assessment to tell us what the total and spawning stock biomass levels are against fishing mortality and make sure that we have reached a current level of spawning stock biomass that is above not only the minimum stock size threshold, which gets us out of being overfished, but reaches the spawning stock biomass at the MSY proxy of 26 percent SPR.

That second part, that's where we're not at yet, but we need an assessment to be able to tell us that. We can't glean that from the interim analysis, and so the next time that we would have the opportunity to see whether we have reached that point and, if not, how far away from it we are, is going to be after the operational assessment for SEDAR 74, which, again, you guys are unlikely to see until probably late 2023 or 2024, at the earliest.

The interim analyses just -- They're not designed quantitatively to answer that question in that way, and so we're still in a rebuilding plan, despite whatever catch limits have been recommended prior to this meeting or could be recommended between the March meeting and when you guys review the operational assessment for SEDAR 74, and we will remain in a rebuilding plan. We need that assessment to tell us that the rebuilding plan has been met.

DR. KILBORN: Right, and so then doesn't a rebuilding plan come along with kind of a prescription on how to carry on, and what are we going to be doing today, or this week, that is going to kind of affect the status quo? I guess I'm a little confused, because it seems like, if we're in a rebuilding plan, then things are pretty well laid out what we need to do, but we apparently are modifying that, or attempting to modify that, and is that correct?

MR. RINDONE: No, that is incorrect. We're not modifying the rebuilding plan in any measurable way.

DR. KILBORN: No, not the rebuilding plan, but the actual activity that goes on in the fishing sphere.

MR. RINDONE: All of that activity that's being modified during the rebuilding plan is all set to meet a target rebuilding timeline, which, for red snapper, is 2032. In the last several assessments, the stock has been rebuilding faster than the projections from the previous assessment would have suggested that it would have, and, if we are looking at the Great Red Snapper Count as a source of information to help tell us a little bit about that, and it could be because there are more fish out there than we previously thought there were.

If there are more fish out there, then presumably there's been more reproduction, and the stock has been growing under the fishing limits that we have been setting in the past, up to a certain point, but all of those catch limits are constrained to continue to work towards rebuilding the stock at or by 2032. As an example, if we had constrained the catch limits to what they were coming out of say SEDAR 31, we would presumably have rebuilt before 2032, all other things assumed to been held constant and equal and unchanging. Does that make sense?

DR. KILBORN: Yes, and so I guess that leads to a follow-up question, in that, in previous meetings, since I've been on this SSC, we have taken votes about whether or not certain surveys would be used as interim analyses, and so did that happen with the Great Red Snapper Count, prior to me coming on to this committee? Is this an official interim analysis?

MR. RINDONE: The definition of "interim analysis" we debated a little bit with respect to red snapper, because of the amount of information that was -- The amount and type of information that was being used to generate the catch advice, and that's why we've been calling it a catch analysis, because it deviates a little bit from a traditional interim analysis, which focuses on one fishery-independent index of relative abundance, and, for red snapper,

essentially what happened is we used the Great Red Snapper Count, which was an estimate of absolute abundance, for the OFL and the NMFS bottom longline survey, which is an index of relative abundance, for the ABC.

There were two different datasets that were ultimately used. Now, you guys only set those for 2021, but, from a regulatory standpoint, when that is implemented, it's for 2021 and subsequent years, and so it remains that way until it's changed. For all species, we currently lack the resources and bandwidth to update all catch limits annually, and so that's just the nature of that beast.

DR. KILBORN: Thank you.

CHAIRMAN NANCE: Ryan, that's an excellent summary. Thank you. David.

DR. GRIFFITH: Thank you, Mr. Chairman. I do recall a lot of discussion where we actually compared these two studies that evidently aren't comparable, but I was wondering if maybe Will Patterson could just briefly tell me the difference between these two studies, and was the LGL study only done in Louisiana, or -- I mean, what was the difference between them, and why do we treat them completely separately? I vaguely recall all the discussion, but it would be nice to have a little refresher course. Thank you.

CHAIRMAN NANCE: Let me kind of take it. David, the Great Red Snapper Count looked at each of the different areas in the Gulf of Mexico, Texas, Louisiana, Alabama, Mississippi, and Florida, and it came up with catch estimates for those individual areas.

In the Great Red Snapper Count, there was not any data collected for Louisiana, per se, and they used some of the catch in Texas, or the estimates from Texas, to be able to come up with estimates for Louisiana. The LGL report had some catch that they used, catch analysis that they used in Louisiana, to come up with estimates for the Louisiana area in a totally separate study, and, Will, why don't you go ahead, and I probably said something incorrect.

DR. PATTERSON: Thanks, Jim. No, I think that's essentially correct. The one thing that I would add is that there were some Louisiana data in the Great Red Snapper Count, or there were some Louisiana samples, I should say, in the Great Red Snapper Count study, but Jim is right in that much of the estimate for the Louisiana portion of the shelf was imputed from nearby data sources, and so that's the key difference.

They were funded through different processes, and then, when LGL presented their -- When Benny presented the LGL estimates, during the SSC meeting when we considered that, and I forget exactly when that was, there was discussion about aspects of that, similar to the review, although there wasn't an external peer review, like occurred with the Great Red Snapper Count. The SSC reviewed that.

Part of the process, and comments given to LGL, was with the idea that perhaps that estimate could be utilized jointly with the Great Red Snapper Count to fill in some of the Louisiana estimate, provided Louisiana estimate, or complement the work that was done in the Great Red Snapper Count.

As a member of the Great Red Snapper Count team, we haven't had any discussions about how that might happen, and different members of the team weighed-in during the review, and you can go back to the minutes and see what was said there, and so I think there might be some differences of opinion about how to do that, or whether to do that, and so, as of now, there hasn't been any type of process to try to reconcile those two studies with respect to Louisiana, and I see that Sean has his hand up next, and so he will probably offer some perspective there as well.

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

DR. POWERS: Just to add to Will, and, for full transparency, I was also a co-PI on the Great Red Snapper Count, but the other issue is that the Louisiana study, the LGL study, was about six to nine months later in this process, and so, when they presented their results, the SSC had some concerns about sampling design and about statistics and extrapolation, and that's what Benny referred to, is they need to respond to those, and so, right now, the two just aren't equivalent, as far as the level of review and response, yet.

Again, Will's point is we've never really had discussions amongst the PIs on how to reconcile the two, and a little bit of that is just because the timelines of the study aren't lined up, and LGL still has some responses to do to the reviewers' comments, and the reviewers being the SSC. That's it, Jim.

CHAIRMAN NANCE: Thank you, Sean. Thank you. Doug Gregory, please.

MR. GREGORY: Thank you. The first sentence in the paragraph above the motion caught my attention. I don't recall us saying that the two studies are completely independent. I thought the direction

we were going was to see if the LGL study, and not the one what was presented today, or yesterday, but the LGL study of Louisiana would substitute -- That data would substitute for the data that was in the Great Red Snapper Count for Louisiana.

They are separate, but there was consideration, if the LGL study is found to be a better estimate by whoever, us or SEDAR, that they would substitute.

The only thing I can find in the verbatim minutes related to that sentence is a comment by Dr. Mickle that says, to that point, my opinion is that we should treat them completely independent from each other and vote on them if they're appropriate for management.

That is the only thing I can see where it says, in the minutes, that we separate them, and so would we vote, potentially, for the Great Red Snapper as appropriate for management, and also the LGL is appropriate for management? I don't see that, and I thought our job was to try to reconcile the two, or the SEDAR's job is to reconcile the two, and I am not referring to the study that was presented yesterday. Thank you.

CHAIRMAN NANCE: From that perspective, Doug, they are two separate, totally separate, studies, and, as we discussed in that meeting, we need to look at them, and my feeling is look at them totally separate. We may find that the LGL study gives a better estimate of Louisiana, and we would be able to use that, but we have to still take these studies independent of one another. Roy.

DR. CRABTREE: Ultimately, if we do come up with a new ABC, we're going to accept an analysis, an interim analysis, done by the Southeast Fisheries Science Center, and then we're going to base the OFL and the ABC on that. Now, the question is going to be should that interim analysis use the LGL estimate for Louisiana or the Great Red Snapper Count, and they're quite different, and so we can review them and think about them separately, but it does seem, ultimately, that you've got to decide that you're going to use one or the other in the estimate of abundance.

CHAIRMAN NANCE: I think that's correct, Roy. That's correct, but they are separate studies, but we can use one over the other for Louisiana. Luiz.

DR. BARBIERI: Thank you, Mr. Chairman, and, to the point that Roy just made, and I see Harry and Benny coming after me here, and so they might be able to clarify this, but I had the same question that Roy just posed on whether we use the LGL study to supplement the Great Red Snapper Count numbers for Louisiana or not, and can

somebody from Louisiana, the state that commissioned that study, or, Benny, you, if you can give those details, if you have those details, explain what was the reasoning behind having this study commissioned and how or whether it ties into the Great Red Snapper Count, just so we have that clarification, because Roy is right that, at some point, if we go forward with an interim analysis that will be conducted by the Center, they are going to want some guidance, in terms of what datasets are to be included there, and so I think we need that clarification. Thank you.

CHAIRMAN NANCE: Ryan, I'm going to put you up front for right now.

MR. RINDONE: Thank you, Mr. Chair. I was going to see if Jason wanted to speak to this first, and, if not, I was going to recall conversations that I have had with LDWF specifically about this.

MR. ADRIANCE: You can take it, Ryan.

MR. RINDONE: Okay. In my direct conversations with LDWF about this, the State of Louisiana commissioned this study, through the agency, to LGL to determine an estimate of absolute abundance for the purposes of the state's information. It was the state that paid for it, and it was the state that was curious about the information, and the state worked with -- The state here is the State of Louisiana.

The state worked with LGL Ecological Associates to frame the study and provide guidance on how it was going to be conducted, and LGL took the lead on doing that work, but the purpose of it was not to be in direct contravention to anything else that had, at that point, been done or was being done, and it was to inform the state for the state's own management purposes for managing red snapper and to expand its own edification of that subject matter.

DR. BARBIERI: Just may I have a follow-up to that point, Mr. Chairman?

CHAIRMAN NANCE: Go ahead, Luiz.

DR. BARBIERI: Ryan, thank you for that, but why -- If this is something that is specific for the State of Louisiana, why is the SSC supposed to review this analysis, and what is the purpose of this review? Is it to develop catch advice based on this review or not?

MR. RINDONE: Mr. Chair?

CHAIRMAN NANCE: Yes, please.

MR. RINDONE: Originally, we had received comments from multiple SSC members and from folks at NMFS about the ability to review this particular study, the LGL study, and that it may offer answers to what was going on in Louisiana, since, as Dr. Patterson pointed out, and Dr. Stunz has pointed out prior to, that not all, but a good portion, of the data that are used in Louisiana are imputed from nearby, mostly in Texas, and I think some of the exceptions to that is the pipeline data.

Anyway, it was thought that perhaps the study could help inform, more empirically, what was happening in waters off of Louisiana. You guys reviewed the work, and you had a lot of comments about different things that you wanted to see done, or things that you didn't want to see, or things that you didn't think were correct, and the LGL group has worked to address those, and you will see the results of that in March, but you also had questions about the study design and the independence of the manner in which the samples were collected, and answers to that are also expected in March.

That information wasn't available, and there are also the comments, for this meeting anyway, and there are also the comments by SSC members prior to today, and today, about the desire to treat these as separate studies, for various reasons, including the staggered overlap of when those samples were actually collected, some small differences in methodologies, and just et cetera, and so you guys have all said these things, and we have verbatim minutes, thankfully, and so that's where we are with this.

The council is not asking you to set catch limits based on the LGL study. In speaking for the council, I think it would be the council's expectation that, like the Great Red Snapper Count, the LGL study would be offered for consideration as part of the SEDAR 74 research track assessment, which is designed to look at whatever is available, and so that, ostensibly, should include the LGL study, and the SEDAR 74 research track process can chew on the totality of all known information and spit out something great, and then we'll do the operational assessment, based on the frame of the car that's been built through the research track process, and then the operational assessment will drop a motor in it, and we'll see how it runs, and you guys can make any management recommendations after reviewing that operational assessment.

CHAIRMAN NANCE: Okay. Thank you, Ryan.

DR. BARBIERI: Thank you, Ryan. This really helps clarify it for

me. Thank you.

CHAIRMAN NANCE: Harry, please.

MR. BLANCHET: Thank you. A lot of what I was going to say has already been addressed. However, I wanted to say there is one path that we have not really discussed, and this is not really an either choice, but there is also the potential to use the data from both the Great Red Snapper Count, or the outputs from both the Great Red Snapper Count and the LGL study, as part of SEDAR 74.

We have regularly, with red snapper, used data from similar sources that are not directly comparable, and think in terms of state-run creel surveys versus MRIP in various flavors, whether CHTS or FES, and none of those are directly analytically perfectly meshed, but they can be used together, and, whether that can or cannot be done in this specific case, we won't know until we get into the weeds with all of this, but I would hold out some hope that perhaps the information from both sources could be used in the future, and certainly that would be the intent of having that data out there, is that it be used.

The other point, to Will's point and Sean's point, is there actually was an external review of the initial report from LGL, and that was three eternal reviewers, and so, essentially, the same level of review that is accepted as peer review by most journals, and so whether -- Now, this body did not appreciate the value of that review when it considered it last time. However, I did want to make that point, that that review was done, and so that's all I've got.

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

DR. GALLAWAY: We'll address most of these issues at the next meeting, and I was just going to say the same thing that Harry has already said, that it was subjected to external peer review, and, in addition to that, I want to make clear that -- It was said the State of Louisiana, and just so it's understand that both state and federal waters, out to the edge of the shelf, were included in the study, as well as the various habitats across all depths and regions. Thanks.

CHAIRMAN NANCE: Thank you, Benny. Josh, please.

DR. KILBORN: Thank you. If both of these surveys had the same goal of estimating absolute abundance of red snapper, and the Great Red Snapper Count had a Louisiana-specific component, wouldn't the

expectation be that there would be some level of concordance between these two sets of results. Unless the LGL study happened to pick up some sort of major spawning or mortality event, I would expect that we would get close to similar results, if they were both correct, and so this concept of one maybe being better than the other and having to choose one seems wrong to me, and I feel like having them both be different calls both of the studies into question, in my opinion, and so I just want to get people to think about that a little bit.

Really, like I said, and maybe I'm wrong, but wouldn't we expect them to have close to similar results, if they're both attempting to estimate absolute abundance in the State of Louisiana?

MR. RINDONE: Mr. Chair, Dr. Frazer would like to take this one, I think.

CHAIRMAN NANCE: Okay. Tom, please.

DR. TOM FRAZER: Thank you, Mr. Chair. I guess I'm looking at this from the council's perspective and what is being asked of the SSC, and I feel like the discussion, at least from my perspective, is getting a little off track.

I think what we would like to see is, by this body, a review and recommendations to the Science Center, coming out of this meeting, with regard to the Great Red Snapper Count, independent of the recommendations that might be made for the LGL study, which is a separate action item in the March SSC meeting, and so, ultimately, as was said earlier, as you go into SEDAR 74, both of these data instruments certainly can be analyzed and used for that assessment, but they can move forward independently in the next few months.

CHAIRMAN NANCE: Dr. Frazer, thank you for that input. Jason, please.

MR. ADRIANCE: Thank you, Mr. Chair. I would just add, to Ryan's little synopsis about where this came from, and Harry could correct me if I'm wrong, but it originally started as a legislative directive, I think back in 2018, and so it was around the same time that the Great Red Snapper Count was spinning up, just to add a little bit more context.

CHAIRMAN NANCE: Will, you're next.

DR. PATTERSON: This is in response to the few comments that Josh made there at the end, and so there are three estimates for the western Gulf of Mexico about what the population size is for red

snapper in that region, one derived from the stock assessment, and then one from the Great Red Snapper Count, and then, for just Louisiana, from the LGL study done in Louisiana, in federal waters off of Louisiana.

All of those are done with different methods, and so this idea that, if you produce different estimates, then they all must be called into question, doesn't really make sense to me.

Secondly, we know that all of these are estimates, and they're wrong. They are model-produced estimates of abundance, but what we have to do, as the SSC, is evaluate which of these do we think are more plausible, and to discern where the differences lie and what causes them, and to do a reconciliation process by which we decide where things could be missed in one model versus the other and one approach versus the other.

We know all of these -- None of these produce a 100 percent accurate estimate of population size off of Louisiana, or any of the other regions where work has been done, but, just because you get different estimates, it doesn't mean that all of them are equally wrong, and that doesn't make sense to me.

CHAIRMAN NANCE: Thank you, Will. Sean.

DR. POWERS: Building on Will's point, the other thing, in addition to methodology -- I mean, Will pointed out yesterday how simple attraction avoidance of gear could influence your estimate, and that builds on his methodology comment, but, more specifically, it's the sampling design and the extrapolation that we use in the model, and, I mean, there was this notion that the Great Red Snapper Count is a model-free estimate, and that's just ridiculous, obviously, and all of these estimates have some model behind them, and so there were some real questions about the statistical design and the ability to extrapolate, and those designs differed very much among studies and, in the Great Red Snapper Count, amongst states within the studies, and so that's really, to me, where the big questions still are with the LGL study.

You will see that Will and Greg, I think, are going to talk about some lingering questions with the Great Red Snapper Count, and all of these have to do with sampling universe and sampling design, and so I just want to reinforce what Will said, and it doesn't mean that -- Just because they give different answers, it doesn't mean that all the studies are incorrect, and we have to understand the sampling design, as well as the methodologies, and then go in and decide which one is the appropriate one for the region and area they used, and I appreciate Tom's comment, and so I won't go

on any more, that we are way off-point with what the council has asked us to do.

CHAIRMAN NANCE: Thanks, Sean.

DR. KILBORN: Can I respond, Mr. Chair?

CHAIRMAN NANCE: Yes. Go ahead, Josh.

DR. KILBORN: I just want to push back a little bit, because, I mean, I am not expecting both of these surveys to come up with the exact same number. However, if they are meant to estimate absolute abundance in one specific spatial area, then, regardless of whether or not you have different methodology, you should still converge on something close to a similar result, and, within statistics, that's one of the foundational things that we teach, that, if you can get a similar result with multiple methodology, then that adds more credence to your statements, and so, again, I am not saying that both of these studies are right or wrong, but what I am saying is that, if they don't have close to a level of agreement -- I mean, one of these studies was far, far higher numbers than the other one, and then they're not estimating the same thing.

I know they're not comparable, because of those reasons, but -- Because of the survey and methodology reasons, but I still think that, if they had the same end goal in mind, then you should get close for both of them.

I mean, I think -- Again, I don't remember the actual numbers, but I feel like one of those surveys had like twice as many individuals as the other, and that's wildly different, in my opinion, and so I feel like there should be some sort of reconciliation between the two, if we're going to ultimately use both of them in the future, but, again, I just wanted to kind of push back a little bit on that. Thank you very much.

CHAIRMAN NANCE: Thank you. Doug, and then we're going to move on to Item Number XIII.

MR. GREGORY: Yes, I think so, and I just wanted to say that what Will said probably should be put in verbatim in our minutes and highlighted. I agree with it, and the thing that hits me, as it has from the very beginning, is how complex this is. The next items we're going to look at are about post-stratification and issues with the State of Florida's estimates of red snapper, and then we're going to look at some survey data, and I will just save the rest of my comments until then. Thank you.

CHAIRMAN NANCE: Thanks. Let's go ahead and, Steven, we'll take your comment after this next topic, but let's go ahead and -- Dr. Stunz and Dr. Patterson, let's go ahead with your report for Item Number XIII.

GREAT RED SNAPPER COUNT REPORT: RE-ANALYSIS OF THE FLORIDA NATURAL/UNCONSOLIDATED BOTTOM-TYPE DATA TO INCLUDE THE RANDOM FOREST DESIGN STRATIFICATION

DR. GREG STUNZ: Thank you, Mr. Chairman. This report centers around, of course, that addendum that's in your packet, and so, Mr. Chairman, there's a lot of moving parts here, and so it's sort of hard to -- I think what I will do is sort of give a little more of an opening and sort of set the stage, because this hinges exactly on what Doug Gregory just said about there is a lot of moving pieces that all need to come together, I think, before you guys really start debating, and so I will kind of get through it, and you can stop me where you want to.

Ryan, I think, did a good job of explaining this, and I wanted to just tell everyone -- Roy Crabtree, I think it was, made a comment, a long time ago, when we were doing all these different reruns and things, of how do you keep track of that, and all of this is summarized, with the timeline and details, at snappercount.org, just so it's archived in one spot, and I even have a hard time keeping track of everything, and I know there is new SSC members, and so they're coming into this without really understanding or hearing everything that everyone else has and how we arrived where we are, and so maybe I can clear a little bit of that up through my presentation today.

It's just an oral presentation, Mr. Chairman, other than pulling up that addendum here in just a few minutes, and so, as Ryan mentioned, we performed the original analysis that went out to peer review, and that produced 110 million red snapper across the Gulf. That review was definitely -- I don't think anyone would argue that that was the most intensive review of our career, by some of the best statisticians in the world, and it was very rigorous, and I think we spent nearly a week going through that, but it was a good process, in the end, because that resulted in this better study and different ways to capture variances.

We addressed all of those concerns in detail, where we could, as it was pointed out, but one of the major things that leads to this presentation today was that it was recommended that we remove this random forest routine, in terms of our design and sample, and go to a general stratified random sample, and this is for Florida only that I am talking about here for the random forest, and

certainly Will can chime-in on that in just a minute, once I give a little more of the overview, and so keep that in mind, that this was just for Florida.

Our official estimate, and so that was let's just say Analysis A, to keep it straight, and so that got reviewed, just like we would do in any peer review process, and then we produced a final report that contained Analysis B and that did everything they asked us to do, including the stratified random sampling design for Florida and removal of the random forest routine, and that's what was presented to you all back in -- I think that was September of last year, and so last fall.

Removing that random forest routine, but still capturing more variance, resulted, interestingly enough, that the estimate went up to 118 million fish, from 110. At the last minute, before we were about to present that to everyone here on this committee, the Science Center asked us -- They felt that it was important that we go back to our original design, and stay true to our original design, and incorporate that random forest model back into that, with all the other new information as well, and, again, this was just for Florida only, and we did that, but you didn't have a lot of time to review that, because literally the request came in a couple of days before the meeting, and we scrambled and got it together, and that's in that addendum, and, just so you all are prepared, if you want to pull that Table 1 on page six in a minute, and that's what I am referring to.

That resulted in Analysis C, and so our official analysis still remains Analysis B, and you all were debating with or without this random forest, and, fundamentally, things didn't change, other than these analytical procedures that were used, and so we did talk -- We did spent a substantial amount of time talking about that, and that brought the analysis back down to 96.6, or let's just say ninety-seven million fish, if you're rounding off there.

That's where we stood, and I guess what you all would like to discuss more today, and I don't know, and there's not a lot else to really discuss, and that's with and without the random forest routine that you get those two analyses, and 118 or ninety-seven is what it comes to.

Now, in the meantime, and I think the presentations we'll hear, that Dr. Siegfried will talk about later, there's been some questions about post-hoc stratification of Florida, to capture some of the shallow-water areas better and things like that, which was not part of the original design, and I don't want to get into that yet, and that's why I was talking about, Mr. Chairman, there's

a lot of steps here, and so that will be coming up.

Some of it revolved around now we have a new stock ID, and different breaks in that stock, and did our Snapper Count match back up to that with post-stratification, and I don't know, and that's sort of what's at-hand, and we'll talk about more in detail, and so, anyway, I guess to keep in mind now with this Analysis D that we're going to be talking about, with the new Florida post-stratification analyses, a few points, I guess, that I wanted to make before we get into the discussion.

That is that we've got to be a little bit careful with that. We're going to post-stratify into shallow-water areas, where snapper have maybe not historically occurred for some of the surveys, but that was the point of the survey, was to look in areas and places we haven't done in the past, and I will explain that a little bit better in a little while.

Then, also, keep in mind what's driving some of this post-stratification reanalysis, and that is that we provided two analyses, this table that you're looking at here, which is our official estimate that we go by that was primarily done by Rob Ahrens, who most all of you know, but we also did this validation, or alternate analysis, by Dr. Lynne Stokes, where she continued to use the stratified random design and was able to break it up more, in finer detail, and we all know, when you do that, you begin to increase some of your variability and that kind of thing, because that never was the point of the study, to be very, very granular within certain regions. It was to generate an overall estimate throughout the Gulf, was the primary goal.

A lot of those questions are coming from that alternate analysis, which is not necessarily what we're going by, and we recognize, when you begin to divide that up, you have problems, and Rob and Will were looking at a much broader brush stroke for our primary analysis, and so the key point there, Mr. Chairman and committee, is that it's an important distinction, and it matters which analysis that you all choose to use, and we just presented both of them.

Finally, a few other little points here that it is important to stay true to that original design, as we consider some of these post-stratifications, and that, obviously, and I don't have to tell anyone here, can bring in some serious violation of statistical assumptions and other things that we certainly want to avoid.

I suppose we could continue to post-stratify these many, many ways,

but that causes some pretty serious concerns for our analytical team, because that's not what it was necessarily designed to do, and, when you're not staying true to that original design, that can complicate things and cause some problems.

The other thing is some of the questions have been, well, we are finding fish where they haven't traditionally shown up, and in the FWRI surveys and other SEAMAP things and other data that Katie will talk about, but it's important to keep the timeline in mind of when these studies were done and make sure that we're really comparing apples-to-apples, because we all know that that fishery has greatly changed, and we hear it from the fishermen, that these fish, relatively smaller fish, are colonizing many new areas and occurring in areas where they traditionally haven't, and so we need to make sure that we're keeping that in the back of our minds, with the idea that the main goal of the Great Red Snapper Count was this Gulf-wide estimate with a 30 percent CV and being careful about those violations and assumptions when we start slicing this down and post-stratifying into very granular, fine strata.

Anyway, that's, overall, kind of where we ended up and how we got here, Mr. Chairman, and I hope this makes sense, because, as I mentioned, it's even confusing for me to keep everything straight, and so, with that, as I mentioned, snappercount.org, and it's all archived, and people can follow how we got where we did.

One thing that I think our team is sensitive to is maintaining the independence, and, of course, this study was funded to be an independent estimate, and we have done that, as a team, and provided that through our official estimates that are posted there.

We're not really in a position to keep doing reanalysis after reanalysis, and so one question will be, if this post-stratification is to occur, or if folks want to do, who would the Science Center like to do that, and probably not us. I mean, we're here, and we've said, from day-one, that we're happy to help interpret, and, of course, the Science Center has all the data, and so there's no problems moving forward with that, but it's just a matter of time and effort and who is going to take the lead on that, and we're here, certainly, to help guide that, in terms of advice and how the study was designed and that sort of thing, but I don't think, or at least I don't envision, the team doing any more official reanalysis on our own, and we're kind of standing by what we have.

Of course, it can be improved with new data, and, as things come out, we certainly understand that, but the study is over, I guess, so to speak, and so, Mr. Chairman, I think I will kind of stop

there, and so hopefully all the new folks understand where we're at, and what we're talking about is that Table 1, with the random forest removed, and we presented that and had quite a bit of discussion in the last meeting, and so I don't know if there's even any more to have, or if maybe Katie wants to give her presentation, to put this all in a bigger perspective, to see where we're at, and I don't know. I will kind of stop there, and you tell me how you would like to proceed.

CHAIRMAN NANCE: Okay. Thank you very much, and I think any questions we have need to be specific to this. Steve.

DR. SAUL: I will pass, Mr. Chair. Thank you.

CHAIRMAN NANCE: Okay. Thank you. Let's go ahead, and are there any questions from the committee specific to what Dr. Stunz has discussed here? I think it's important, as we go through these presentations in a linear form, that we discuss each one and then kind of wait until the end to come to some summarization of things, or we'll spend the rest of the day trying to summarize something we haven't heard yet. Okay. It doesn't look like there is any specific questions on this, Dr. Stunz, and so is that the end of the presentation?

DR. STUNZ: Thank you, Mr. Chairman. Yes, that's the end of what I wanted to cover today, and I will be here, certainly, if there is any questions, or Will is probably most informed, because, obviously, he was in charge of this region, and so he can answer that, but I am happy to be here, if something comes up after.

CHAIRMAN NANCE: Okay. Perfect. I appreciate that. Let's go ahead and take a ten-minute break, and then we'll come back and, Dr. Siegfried, you will be ready for -- So I guess, at 10:40, we will reconnect and hear Katie's presentation. Thank you.

(Whereupon, a brief recess was taken.)

CHAIRMAN NANCE: Dr. Siegfried, we're ready to have your presentation.

DISCUSSION OF RESULTS OF POST-STRATIFICATION ANALYSIS BY SEFSC, FWC, AND GRSC TEAMS FOR FLORIDA ABSOLUTE ABUNDANCE DATA

DR. KATIE SIEGFRIED: Thank you, Mr. Chair. I am going to try to go through these new collaborative efforts that we've initiated and that have been initiated towards us by some of our partners that I have listed here, and in later slides, but what I'm going to show you is an attempt to post-stratify the Great Red Snapper

Count estimates, specifically for Florida. I just wanted to sort of provide the caveat that this doesn't mean that everything else is fine everywhere else, but this is just a collaborative effort that has been identified for Florida alone.

What's the issue that was brought to our attention, both internally and by our partners? FWRI, the Science Center, and some of the PIs from the Great Red Snapper Count met between the last SSC meeting and today to discuss these Florida estimates that came from the Snapper Count.

Specifically, the spatial distribution of the fish in the Snapper Count is in conflict with data from both the SEAMAP and FWRI surveys, and, as we've gone through multiple iterations of pieces and parts looking at this, the Snapper Count and different reviews, we have -- This has become clearer to us and our partners.

Extrapolating across the vast areas of the Florida Shelf could be an issue. More specifically, we discussed whether those sparse positive observations for large spatial strata could have a large effect on those final estimates, and I will show lots of pictures and plots later to help with these bullet points, and then we discussed whether post-stratification may be appropriate.

We also discussed whether cutting that ten to forty-meter depth strata into two pieces, or parts, ten to twenty-five, or ten to twenty, and then the rest of that stratum. We discussed whether that may be more appropriate, specifically because the assumption in the Snapper Count is that that's a homogenous depth zone, with respect to the biology and the abundance of the red snapper.

We also discussed whether the Great Red Snapper Count, particularly for the Florida portion of the survey, or the portion of the count, differed from survey expectations, because it was just a snapshot in time, and so, specifically, Will Patterson brought up that, well, maybe this has been a change in abundance distribution, which I have also heard from other SSC members during the course of this meeting, and so we wanted to discuss comparing the trends, the relative abundance in the Big Bend region of Florida and south Florida, through time from the surveys.

I don't know if there is a way to stop me if there is questions, because it could be quite cumbersome to answer all of them at the end, if people would like to ask questions along the way, and that's fine with me.

CHAIRMAN NANCE: If we do that, I'm not sure -- Bernie, you can kind of look for hands, I guess, and then alert Katie to those.

MS. ROY: Will do.

CHAIRMAN NANCE: Okay. Thank you. Thank you, Katie.

DR. SIEGFRIED: Sure. Thanks, Mr. Chair. I didn't think about that, that it might be more complicated logistically, and so whatever is easiest for you all, and I can answer questions whenever.

More details about our discussion are listed here, and so, from the Snapper Count, a large proportion, and these numbers may be slightly off, based on which table we have looked at. As Greg Stunz commented, or mentioned, there is, I think, four different potential estimates of total abundance, which all distribute that abundance a little differently east to west, and then in Florida specifically, and so forgive me if these numbers are not exactly right, but a large portion, in this instance greater than 50 percent of the Florida red snapper population, is in the Big Bend area of Florida. In the Snapper Count documentation, it's called mid-Florida, and then there's about twenty-seven million in the shallow, the ten-to-forty-meter depth range, out of the forty-seven million total.

Around 10.2 million are in the south region, which is south of Tampa, with 4.5 million in the shallowest depth strata. What that means is that around 30 percent of the total abundance in the Gulf, and this is from the ninety-two-million estimate, which I think is the Lynne Stokes' version of the final estimates, is in the shallowest depths of mid and south Florida, and that conflicts with the distribution of fish from the SEAMAP and Florida surveys.

What I have shown here -- Circled in red is the shallow estimates, and there is from the mid region, which is the Big Bend and the southern region, and there is shallow estimates circled here for you of about five million, about eight million, and about nine million, and then, in purple, or blue, is the shallow estimates for the southern region, and each of those three is the high, medium, and low probability from the random forest model, and so it's just so that you have this in the presentation, and this is what we were looking at during our discussions.

On the left, we have the shallow depth, and this is an illustration of the fact that the shallowest depth strata is estimated to have the large abundance, but it's based on very few samples, and so, specifically, the red dots indicate an occurrence of a red snapper, and then we have our depth contours, and you can see that the shallowest depth contour contains extremely few red dots, which is

something that concerned us, because that shallow depth stratum contained a very large estimate of red snapper from the Snapper Count.

On the right, we have -- This is from FWRI, if those folks are on the phone and would like to correct any mistakes that I might make here, and this also indicates that there is very few fish in those depth strata, and their strata was ten to twenty-five meters, and so there is almost no positive stations in that depth stratum, and most of the fish in the ten to forty-meter depth stratum occur outside of the twenty-five-meter contour line, and so extrapolating across that whole ten to forty is taking a heterogenous abundance, or encounter rate, and creating a homogenous estimate.

MR. RINDONE: Mr. Chair, we have a question from Dr. Froeschke.

CHAIRMAN NANCE: Okay. Thank you.

DR. FROESCHKE: Can you go back to that previous slide, Katie? My question is, on the left panel, it doesn't extend as far to the west, and it only goes to 86, whereas the other one goes to 88, and most of the positives in the shallow region, on the panel on the right, are in the 86-to-88 west area. Is it possible that we could see that panel on the left extended to the west, so we could see if there's a similar thing going on?

DR. SIEGFRIED: Certainly, and there is a number of plots that we can pull from the Snapper Count, and I think that Greg's team has provided a lot of different views of this, but the main point is that what we saw was the Big Bend contained fewer occurrences, and so less relative abundance, than the Panhandle, and the final estimates from the Snapper Count actually showed the converse of that, and so I was zooming-in here, and I used the plot on the left, and you're probably right that I should have used the one with the extended region, but the final estimates show that there is more fish estimated in the Big Bend area than in the Panhandle, in our surveys from Florida, and then also from SEAMAP, which I will show you, show the opposite. We can get that together, John, if that's helpful.

DR. FROESCHKE: Yes, and it's just hard to -- Like I can see -- In the panel on the left, I mean, you can see there are not a lot of positive samples, or even really negative samples, in the Big Bend region on that panel, but you can't really see if the similar pattern in the Panhandle is reflected to both studies.

DR. SIEGFRIED: We started to look at this because it was kind of

a gut-check that we got from FWRI survey folks, and from our SEAMAP survey folks, that it just didn't seem to jibe that we would get more fish in the Big Bend than in the Panhandle, but I get your point.

CHAIRMAN NANCE: Will, to that point, please?

DR. PATTERSON: It's not listed here in the legend on the map on the right, and I missed it if Katie mentioned it, but another thing is that the data on the right I believe are a composite from 2010 to 2019 or 2020, and so it's not the same years of the survey on the left, and it's also a composite across many years, I believe, and she can correct me if I'm wrong here, in which we have other sources of information that say the distribution of red snapper has been changing.

DR. SIEGFRIED: That's true, Will, and that's something that we discussed, to look at this temporally, because it was brought up that potentially it had shifted in 2018 and 2019, when the Snapper Count occurred, and we do have some data we put together, at least for the SEAMAP, to show the relative abundance and whether it shifted, later on in the presentation. I think that Ted, from Florida, did produce this annually as well, and that's in his presentation, potentially, but, yes, you're right that this is a composite.

CHAIRMAN NANCE: Okay. Thank you. Katie, go ahead, or Dave.

DR. CHAGARIS: I just have a quick question. The map on the left is only showing the sampling on the unconsolidated bottom, but the figure on the right is largely coming from targeted reef structure sites, and is that correct?

DR. SIEGFRIED: I think it's artificial and natural, but let me look.

DR. CHAGARIS: I wasn't aware that they were sampling the unconsolidated bottom with the FWRI camera surveys, at least not intentionally.

MR. RINDONE: Ted, are you around?

CHAIRMAN NANCE: If he is, he's probably muted.

DR. TED SWITZER: Can you hear me?

MR. RINDONE: Ted, would you mind giving us just a Cliffs Notes version, real quick, of how the FWRI survey works, the gear and

where it's deployed, generally speaking?

DR. SWITZER: Actually, I'm going to talk about it in a lot of detail in the next talk, but, essentially, the slide that Katie is presenting there was aggregated for the stock ID process, and that includes both artificial and natural reef habitats, and, in my talk, I actually split those out, to better focus for reef strata, and, based on the ability of us to characterize habitats on our side-scan sonar, which is an important part of our survey, we probably do dabble a little bit in what Will's survey might have called unconsolidated habitats, and we definitely need to do some cross-referencing there to double-check, but we do sample some fairly low-reef habitats.

MR. RINDONE: Thanks for that quick clarification, Ted. It kind of seems that, looking at these two graphs here, that this information is not directly comparable, both from where the samples are actually taken and the amount of time over which they were taken, the habitats that are included, et cetera.

DR. SIEGFRIED: Thanks, Ryan. That's why we -- This is what we were looking at when we got together as a group, and that's what this talk is about, is what else needs to be looked at in order to look at apples-to-apples.

CHAIRMAN NANCE: Okay. Thank you. Dave.

DR. CHAGARIS: Mr. Chair, if I could just add one more thing, and I think that it actually supports the point that they're trying to make, more so, because what the FWRI data show is that, even on what would be considered better habitat, or structure, you still aren't getting a lot of high-abundance samples in those shallower strata, but I just wanted to point out the differences in the two maps.

CHAIRMAN NANCE: Thank you very much. Doug.

MR. GREGORY: Thank you, and I was just curious how far inshore, how shallow, the different surveys go, and Ted can tell us, in his presentation, about his data, but SEAMAP data, how far inshore, and it looks like the Great Red Snapper Count in Florida started at ten meters and moved offshore, and did everything kind of start at ten meters for all the surveys?

DR. SIEGFRIED: Thanks, Doug. The Snapper Count folks can address that side of it, because I don't recall, from the report, but the shallowest I've seen for SEAMAP I believe was nine meters, and so ten is probably a good cutoff.

MR. GREGORY: Thank you.

CHAIRMAN NANCE: Will, does yours start at ten?

DR. PATTERSON: I had my hand up to actually talk about this, and so thanks for calling on me. Yes, ours starts at ten and goes to 160 meters. In her presentation, Katie mentioned that the stratification, as far as ten to forty and forty to 100, and 100 to 160, was meant to be homogenous with respect to red snapper biology and distribution.

That's not quite how it came about, as far as the sample design. The RFP for the original funding for this from Sea Grant specified these zones, and that came out of this pre-proposal process, where several different groups got together, and one group actually mapped out -- Mike Dance and Jay Rooker published a paper on this, about the biomass distribution across the shelf, and, from those results, this stratification was included in that RFP.

The random forest model that was produced by Zach Siders and Rob Ahrens, across the Gulf, was meant to predict -- It wasn't a habitat-based map, but using survey data and fishery-dependent data from a variety of sources, and, again, this is available in the report that Greg has talked about and where to find it if you don't have it, and so using a variety of fishery-independent and fishery-dependent sources to predict high, median, and low probabilities of encountering red snapper.

It's the combination of that depth stratification and the random forest that was then used to predict the sampling that would be required to produce CVs less than 0.3, and so, anyway, that's how the stratification came to be, and it wasn't -- We didn't have a preconceived notion about homogenous with respect to these depth strata, and that was sort of imposed by the RFP.

CHAIRMAN NANCE: Thank you. Steven Saul, please.

DR. SAUL: Thank you, Mr. Chair. Sort of to that point, Katie, I was curious as to whether uncertainty was computed, or calculated, around some of these estimates, and like, for example, around the estimate of 30 percent of the abundance being inshore, particularly given the small number of samples, and I would be curious to know what that uncertainty was.

Then my second question is I was wondering how much, to what extent, red tide may affect red snapper, and, if so, it would, obviously, really matter where and when you're sampling, in terms

of time and such, and that could, obviously, impact the inshore numbers. Thanks.

DR. SIEGFRIED: Thanks, Steven. As for the red tide, I am not the best person to answer that question. In many cases, when I am presenting this collaborative work, it helps when others, other experts, help with those types of questions, and so, if Mandy or somebody like that, wants to weigh-in on red tide, I would be happy to give them the floor.

As for the CVs, from Greg's Table 1 in the document that he was discussing, prior to my presentation, the CVs look like -- It has natural and uncharacterized bottom has a CV of 22 percent, and artificial has a CV of 17 percent, but I don't have it broken down finer right at my fingertips at the moment, and I think that that was the ninety-seven-million fish estimate, and so my numbers might be just a little bit off, and it might actually be worth presenting, or showing, all of those four different versions with their CVs, for folks like you that have those questions, but I think it was Roy, or somebody paraphrasing Roy's previous comment, that it can get a little confusing going iteration to iteration, and so those are the CVs from what Greg just presented. Does that help?

DR. SAUL: Yes. Thank you, Katie.

DR. SIEGFRIED: It's not broken up by depth though.

CHAIRMAN NANCE: Luiz.

DR. BARBIERI: Thank you, Mr. Chairman. Katie, this may be a question more for Will, but I am seeing here the figure on the left saying "sampling on UCB", and, to the point that Dave Chagaris made, and clarification from Ted regarding how the FWRI sampling is conducted, relative to structure habitat, were the Great Red Snapper Count numbers for the West Florida Shelf there from Will just conducted on UCB, and, if not, if there was also some structure habitat, is there a map here that we can see like this where the two get overlapped, so we have -- I am getting the impression that the graph on the left does not have any sampling on structure habitat, and is that correct?

DR. SIEGFRIED: There has always been a lot of discussion about what is UCB off of Florida, and it seems to be a little different in other regions, and Will, like you said, might be a better person to answer that question.

DR. PATTERSON: My hand is up. Can I just go ahead and speak?

CHAIRMAN NANCE: Yes, please, Will.

DR. PATTERSON: I didn't make the map on the left, and I don't know where that heading, where it says, "sampling on UCB, note very low samples in ten to twenty-five meters", and 95 percent of the samples for which we had positive red snapper viewed in our ROV transects occurred on habitat that had some structure.

Now, part of the reconciling that we've been working through, with Ted and his team, and the NMFS folks, who first reached out to us on this, has -- The next step is look, I think, more closely at the samples and the data, to understand habitat characterization and how these things differ.

It's my understanding that all the samples on the right are focused on structure habitat, in which there are side-scan sonar surveys conducted to further develop the universe of sample sites and then a random selection process to pick annual sample sites. A key difference in the way the sampling is done is that the samples on the left came from ROV transects that were flying across an area of bottom that is about a thousand square meters.

On the right, the samples come from baited traps, where fish are pulled in with bait, and they are viewed them with cameras that historically were four orthogonal cameras and, more recently, they're spherical cameras that have been utilized, and I think Ted is going to go through some of that methodology, but just the question from Luiz sort of spurred some of this, to detail what the differences might be.

The samples on the left, the red snapper across the range in Florida that we surveyed, and we used stereo cameras mounted to the ROV to estimate the size distribution, a little over 60 percent of them were below the legal recreational size limit of sixteen inches, and so fairly small, young fish, and, in the Great Red Snapper report, there's a distribution that shows that relatively few fish above 500 millimeters were seen, and so it's mostly small, young fish.

It's unclear to me, and I don't know if there's any data to demonstrate how surveying with an ROV, where you're running a transect across the bottom, and you're mostly seeing small, young fish, versus using a baited camera trap, or a baited camera, excuse me, rig, but how the fish may interact differently with those gears, and so that could affect estimates of at least presence, if not density, although density isn't produced in the surveys for the data shown on the right, and you can see the metric there, and

the circles are maxN, and so the maximum fish number seen in any one frame across the time period of analysis.

There are some key differences, and I think we need to keep those in mind, just to understand why our perception of red snapper distribution, looking at one map versus the other, might be different, and I think it's easy to attribute this to something in the Great Red Snapper Count, but we know that both of these are estimates, and they're using slightly different, or maybe substantially different, approaches.

CHAIRMAN NANCE: Thank you, Will.

DR. BARBIERI: Mr. Chairman, just quickly, thank you, Will, because this helps a lot, and I just wanted really to clarify that the sampling that was conducted, the samples that we see there in the map on the left, are not exclusively on UCB, and they include structure habitat as well, and is that correct?

DR. PATTERSON: That is correct, yes. What I see there looks like our full sample distribution. Again, I didn't make the map, and we didn't have a habitat map, but we could say, okay, we want to go to all the sites that have this type of habitat, to estimate how many red snapper are there, and this type of habitat to estimate how many red snapper are there, and, instead, we utilized the fishery-dependent and independent data, Zach Siders and Rob did in the random forest model, to predict, based on that, what the probability of high, median, and low red snapper presence would be. Then, once we were there with the ROV, we could characterize what habitat we encountered.

DR. BARBIERI: Right, and, Mr. Chairman, just a quick follow-up. When you say there that the random forest model was developed using data from fisheries-dependent and fisheries-independent sources, and what were the fisheries-independent sources that were used to inform the random forest model?

DR. PATTERSON: You can find all that in the report. I don't have a list in front of me, and I don't want to go through them, for fear that, by omitting one, it would be problematic. The data on the right, the FWC camera trap, was not used to develop this.

DR. BARBIERI: Okay. Thank you, Will.

DR. PATTERSON: I keep saying "camera trap", and I meant --

CHAIRMAN NANCE: Yes. Okay. Thank you. Katie, why don't you go ahead?

DR. SIEGFRIED: Thanks, Will, for clarifying that. I did check with the analyst who made the header on the left, and it is the full samples, and I apologize, and it says "UCB".

This was more data from FWRI that was brought to the table during our collaboration, and, on the left, we've got -- It's split into the regions that we're discussing, although the Snapper Count has it just as three regions, rather than four, and it shows the zero samples on the left, the ones that did not encounter red snapper, and, on the right, it's stations that did encounter red snapper, and this is 2015 to 2020.

It's not the ten-year timeframe from before, and this was just provided to illustrate that, okay, if we have few red snapper positive encounters, or positive samples, how many zeroes are there, in making sure it's a more recent timeframe to compare, as was brought to our attention by Will during these meetings.

We're trying to get as close to the timeframe of the Snapper Count as possible, and so you will see -- Again, our point is, in the Big Bend, there is relatively few red snapper, though there was one pretty productive trip, and you can see that large red dot, but several, or maybe a dozen or so, that you can see the black dots on the left. Then quite a few positive samples, and quite a few zero samples, in the Panhandle and in other regions.

CHAIRMAN NANCE: Will, go ahead, please.

DR. PATTERSON: Is this a good time? I thought Katie just said something.

DR. SIEGFRIED: What I was going to say is that you basically were part of this collaboration, and it's fine with me if you speak up freely, and I know it's logistically difficult, and it's too bad we're not in the room.

DR. PATTERSON: Okay. I think the data that we're looking at here is both artificial reefs and natural reefs, and is that correct, Katie?

DR. SIEGFRIED: I believe so. I think that's what Ted was just commenting on, and so this is just a more recent time period and broken out into the zeroes and positive trips.

DR. PATTERSON: One of the issues in the Panhandle is that the density of artificial reefs there is much higher than any of the other regions, and so it's difficult -- Since we sampled very

little artificial habitat in Florida, and the reason that we did is because our preliminary data showed little variance, and sometimes this is sort of a nuanced discussion, about where samples got distributed, but, when you do the stratification, you have to add samples in areas -- You have to add more samples in areas where the variance is higher, to get your CV to the 0.3 threshold, and so there were lot of areas where we sampled where didn't expect to see any red snapper, or encounter them infrequently, but the reason that we had to put so many samples in those regions, those areas, was because, if we did see them, then they would inflate the variance, and, even though many of our samples were zeroes, it would be problematic for the overall estimate.

We didn't sample very much artificial reef habitat, because our preliminary data suggested that there's a low percentage of red snapper in those habitats, even though quite a bit of the catch, especially in the recreational fishery in the Panhandle, for example, may come from artificial reefs, that the distribution of red snapper was mostly away from artificial reefs, and so, anyway, while this does break out into more contemporaneous time period, when the red snapper count was conducted, in 2018 and 2019, it still has this issue of confounded with artificial versus natural.

CHAIRMAN NANCE: John.

DR. FROESCHKE: I am just confused on the header of this slide, because it seems -- It says "fishery dependent", and this seems like fishery independent, and so I think I missed something.

DR. BARBIERI: If I might jump in, Mr. Chairman, just to clarify, and I don't know if Beverly Sauls or Tiffany Cross are on the webinar, but, John, this is actually fishery dependent, and so the previous graph that was shown, with the data from the West Florida Shelf and the Great Red Snapper Count on the left, and the fishery-independent data from FWRI on the right, and this one here is based on fishery-dependent samples. I just got a text saying that Dominique Lazarre is on, and, Dominique, can you help clarify this, either you or Julie? What part of the fleet, for example, is included in the following figure for the fishery-dependent sample collections?

CHAIRMAN NANCE: We need to move to Slide 6. Dominque, I think you're unmuted.

MS. ROY: Dominique, you will have to unmute yourself, if you're wanting to speak.

DR. PATTERSON: While we wait on Dominique, I just wanted to point

out that maybe part of the confusion from John is that the units here are given as maxN, which is from video data, and so I don't know if this is total catch or CPUE from observers or what the source of the data might be or what the units actually should be.

MS. DOMINQUE LAZARRE: Unfortunately, I don't think I'm going to be able to help clarify this, because I wasn't involved in creating these graphs and summarizing this data. I would agree with Will that maxN probably -- It's not the same measure as what would be used in the fisheries-independent work, and it might be the total number of fish harvested, or interacted with, during a station, during an actual observer trip, but I didn't help put these graphs together, and so, unfortunately, I don't think that I can speak to what specifically those numbers are, but I can try and reach out to Tiffany and see if I get to more information and get back to you all.

CHAIRMAN NANCE: Thank you. Beverly.

MS. BEVERLY SAULS: Thank you. Tiffany Cross and I worked on these figures, and these are at-sea observer data from charter boats and headboats with fishery observers aboard that observed harvested and discarded fish, and we just provided these as backup support for the fishery-independent data that Ted Switzer will talk about later, but this is just another time series of data that we looked at to address this question, and these were not broken out by artificial or natural reef.

DR. SIEGFRIED: It's total number fish and not maxN, and is that right, Beverly?

MS. SAULS: It's the number of fish that we observed at each station.

DR. SIEGFRIED: Thank you.

CHAIRMAN NANCE: Thank you, Beverly. Will, to that point?

DR. PATTERSON: I am just curious, and so number of fish caught, or observed being caught, on a station, irrespective of number of anglers, and this isn't standardized to time fishing or angler hour or anything like that?

MS. SAULS: No, it is not.

DR. PATTERSON: Okay. Thanks.

CHAIRMAN NANCE: Trevor.

MR. MONCRIEF: Thank you, Mr. Chair. John kind of brought up the question that I wanted to bring up, and the clarification has been talked through. The one thing I had is I would just ask -- The paucity of data in the Big Bend region, is that likely the fact of the low number of fishermen, or is that just a place that you all can't really get to, as far as the observer coverage goes?

MS. SAULS: There's not a lot of -- There is no headboats, and not a lot of charter boats, that operate out of that area, and so we have not had historically good sample coverage up there.

MR. MONCRIEF: Okay. That's what I assumed.

CHAIRMAN NANCE: Thank you. Katie, go ahead, please.

DR. SIEGFRIED: Sure. Thanks, Beverly, for jumping in, and everybody who is helping clarify the plots. This is more work that Beverly provided to the group, and it's just sort of laying out how many fish per depth zone, ten to twenty, twenty to thirty, and so on, showing that, in the Big Bend region, there are really few fish in ten to twenty, but it looks like the total -- It looks like the total sample is 439, and so it's not that it's under-sampled, which we might need a little clarification about, but, in general, the number of fish that are captured in that Big Bend region, in ten to twenty meters of water, is quite small, compared to twenty to thirty and thirty to forty, which is the point that we're needing to discuss, whether we're expecting to find so many red snapper in that shallowest depth stratum.

I think that you all have seen this quite a bit, and John Walter is going to discuss this in a lot of detail later, as far as the commercial landings distribution, and you've seen the Karnauskas et al. work looking at the biomass index, and this is the relative biomass index that's reproduced from her, and others, work. This is a heat map, and so, the darker the color, the more fish are expected, and so what we're expecting to see, which is contrary to what we see in the snapper count, is more fish expected in the western Gulf, rather than in the eastern Gulf, and this was another reason that we got together, is this just didn't jibe with what people had -- On the water, year after year, were expecting to see. It looks like Trevor's hand is up.

CHAIRMAN NANCE: Trevor, go ahead, please.

MR. MONCRIEF: Sorry for interrupting again, but I just had a quick question on that Slide 7, and just a further clarification on kind of the questions that were coming out of that one, and were these

samples taken during red snapper season specifically, or was it all year-round? Can you speak to a little bit of that, as far as the fishery-dependent stuff goes?

DR. SIEGFRIED: Can we let Beverly answer that?

CHAIRMAN NANCE: Yes, please.

MS. SAULS: Could you repeat the question?

MR. MONCRIEF: The fishery-dependent samples that we're discussing in the figures here, is that from the entire year of the observer coverage, or is it only during red snapper season? Can you speak a little bit about that?

MS. SAULS: This is year-round coverage, discarding out of season.

MR. MONCRIEF: Okay, and the reason that I bring it up is I just want to point out what we see in our fishery -- Our fisheries aren't the same. Generally, what we see is the first shutdown of the fishery is in the shallow part, and the CPUE drops off, and the fish really disappear out of there, and so I just wanted to make sure that I had that in my mind while we're going through this discussion.

MS. SAULS: No problem.

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

DR. GALLAWAY: I was going to refer to Figure 2 that was on the screen, and can you put that back up? It's the Karnauskas et al. study, on the left panel there, and I would like to just contrast the biomass density, and I think it's biomass, and it's kind of small on my cellphone, but the difference between density in eastern Texas and most of western Louisiana, and that's just an observation. Thanks.

DR. SIEGFRIED: Thanks, Benny.

CHAIRMAN NANCE: Okay, Katie. Go ahead.

DR. SIEGFRIED: If I can leave the commercial landings distribution discussion to John Walter's presentation, I think it will help, because there is so much more detail there, but the main point here is just where the exploitation is occurring, as opposed to where our biomass index indicates the fish are located, and so, if we could just keep that in everybody's brains and wait for that other presentation, unless Will has something to the last point.

DR. PATTERSON: I just wanted to -- This first sentence at the top of the slide, that says the estimates from the snapper count study look very different than Karnauskas et al., right, and so that's empirical. That's based on the data and the distributions, and so the next question is why, and like what are things that could be driving that, and I will just point out that the Karnauskas et al. estimates are mostly derived from samples that were collected in the early 2010s, and our samples were collected in the late 2010s, during a time period for which we have some information that the biomass distribution of red snapper, particularly in the eastern Gulf of Mexico, has shifted, and this has come out in SEDAR and other workshops related to Deepwater Horizon, et cetera. Anyway, I just wanted to make that point.

DR. SIEGFRIED: Thanks, Will. You are making excellent points, and I think that the long-term goal of everybody is the same. The problem here is that the SSC is tasked with this interim analysis, which is based on these final, final numbers, and so the Science Center is coming at this, along with our collaborators, thinking, okay, how do we get the best number now, and does this all jibe with what we expect to see in each of these points, as far as the temporal expectations. Like, if there's an expectation that things are changing towards what we see in the red snapper count, we need to know that for SEDAR 74 and fully explore it during SEDAR 74.

In my mind, with my team, that's what we planned to do, over the next year or two, is take all of this Great Red Snapper Count data, and we've met with Greg, and try to put the full picture together, and so I completely respect your points, and we are trying to get at the heart of why these are different, and so I'm just trying to show the rest of the SSC that this is what we came to that collaboration table looking at, and these questions about temporal changes is something we need to try to get at before March, it sounds like, and so let's move on to the next slide, if we can.

DR. PATTERSON: Can I just speak to that, real quick, Jim?

DR. SIEGFRIED: Sure.

CHAIRMAN NANCE: Go ahead, Will.

DR. PATTERSON: I totally agree, and I am 100 percent supportive of poking and prodding the data and trying to scrutinize things as much as can be done. I've been supportive of this process from NMFS and FWC to work with Rob and myself, and Greg and others, to try to better understand the Florida distributions and make sure that, given what's at stake here, that this has been vetted and

fully examined, as much as it can be.

In this presentation, it started out with this idea of the estimates in Florida, the distribution, especially in the shallow water, of biomass was questioned, and now we're presented information where we have bits of pieces of data that show differences, and I just think part of that presentation of differences should include ideas about what could possibly be generating them, and I think that, if we're going to go down this road of examining differences, then we should fully examine differences, and I know this is part of the setup, Katie, but just a couple of things that I wanted to point out, and this was one of them.

DR. SIEGFRIED: Yes, absolutely, and I appreciate that, and, Mr. Chair, I'm sorry that I keep going, yes, go ahead, and I'm being too informal, and I know this should be more formal, and I will try to --

CHAIRMAN NANCE: You're fine. It's harder with none of us in the same room, and so you're fine.

DR. SIEGFRIED: Okay.

CHAIRMAN NANCE: Thank you. Let's go ahead.

DR. SIEGFRIED: The plot on the left is the similar portion of the Florida coastline that we showed earlier, with the designated habitat classifications of the low, medium, and high, and then the distribution of the samples with the red circles being those positive sightings, and so it's a different way to look at the plot earlier, where we see this random forest model and the way it described the probabilities of each of the sites.

I mean, even though the samples were selected from that random forest model, for the probabilities, they, at our first glance, did not seem to cover the large swaths of low-probability habitat and seemed to be concentrated, which it seems like, as we've been discussing this, more by design, in the deeper part of that ten-to-forty depth zone, and so that the group discussed was that that ten to forty is probably more heterogenous than the extrapolation acknowledged, and so we wanted to directly discuss that heterogenous nature of sampling and captures from ten meters to forty meters and how that changed.

The effects of the artificial versus natural reef sampling in the survey from Florida, we wanted to look at in-season versus closed-season sampling, which you all have brought up, and so you read

our minds, and then the main point that Will and I have been discussing is whether there are temporal trends, whether the snapper count is a snapshot of this changing expectation of distribution, and then what depth strata are possible during post-stratification?

Even though they specifically asked to examine these depth zones, it didn't dictate how to do that statistically, and so it didn't say that you may not post-stratify, given more information, and so it is possible, even though the depth zones were specified for sampling in the RFP.

So what's the plan? The snapper count PIs, mainly Will and Rob Ahrens, the FWRI staff, and we've been in contact with Beverly Sauls and with Ted Switzer and Luiz and their staff and coworkers there, and then whatever Center staff that we can scrape together to collaborate to do the following, and we wanted to look at those temporal patterns, and I think Will's points are well taken that we do need to see what the snapshot truly means and why it may be different from the longer-term data.

Look at the size composition data, to understand why the smaller fish were collected in Florida than in other regions, which I know that that's a fine-scale question, but it's interesting, specifically for SEDAR 74, and to determine whether, how, and who will do the post-stratification of those Florida estimates.

One of the things that came up, like I have mentioned several times, is the temporal concern and whether the longer-term SEAMAP or longer-term FWRI survey data is really relevant, or directly an apples-to-apples comparison with the Great Red Snapper Count, and so we tried to take the more recent time period, and this is 2014 to 2019, for the SEAMAP summer groundfish, and this is a plot with all of those data combined, and then we also have it annually.

I don't expect us to come up with some sort of answer from these plots, and what I wanted to do is just show that we have made progress by pulling these data apart and trying to look at them regionally, with the whole Gulf, as well as just in Florida. If we go to the next slide, we can take a look at them annually.

Again, I don't expect us all to come to some decision about this at this point, but the SSC members can take a look at 2014 and 2015, and then 2016 through 2019, and the other collaborative work will also examine this in more detail, to see whether that 2018 and 2019 time period, when the snapper count took place, was really that different from the earlier time period within SEAMAP.

Then this is the fall groundfish survey, and this is the same setup, and so you all can look at this individually later on, and so this is the composite, the 2014 to 2019, and the next slide should be 2014 and 2015, and then the next slide is 2016 to 2019, and what we want you to take a look at is whether you see a big difference in the 2018 and 2019 year, compared to previous years, for SEAMAP, and then the collaborative work will look into that in more detail, comparing that with the snapper count.

I think the next one that we have is the video data, or sorry, and it's the bottom longline survey, and this is broken up the same way, but we have 2020 data for the bottom longline survey. This is the composite, and the next slide should be 2014 and 2015, and then the next slide should be through 2019, and then the final slide is 2020 for the bottom longline survey, and then this is the reef fish video survey, plotted in the same manner, and it's slightly different, because they are video drops instead of hook surveys or trawl, and this is just the video, and so you can see the sampling, where there's no catch, with the gray dots, and this is 2014 through 2019, and this is the SEAMAP and Panama City reef fish surveys, and the Florida wasn't included in this, but it was authored separately.

This is 2014 and 2015 broken out, and then the last slide should be 2016 through 2019, and, again, the goal would be to take a look at 2018 and 2019 and see if it's different in time from the previous years, to answer these questions that Will and others have been bringing up about the snapshot nature of the snapper count, and that is what I have for you, and I know that it can be a little bit unsatisfying, because we don't have the final answer yet.

We're still taking a look at whether the post-stratification is possible, and, again, we've had the issue of who will do it, and we're open to considering other things when we do this post-stratification effort. If any of the collaborators have anything to say about the way the meetings have gone, or any issues with, I guess, participation, and we've tried to make this as transparent as possible, and it was only initiated when our collaborators came to us saying, look, our data agree with yours, and let's see why they're different from the snapper count, and we haven't made an effort to examine this sort of issue in any of the other state data. It looks like Will and Mandy and Sean are up next.

CHAIRMAN NANCE: Thank you, Katie. Just a reminder, as we take questions, that, after lunch, there will be a more formal presentation of the fishery-independent indices, both the SEAMAP video survey and the bottom longline survey, and so just take that mind, too. Will, please.

DR. PATTERSON: Thanks, Jim, and, Katie, thanks for running through these different surveys and giving us a sense of the data by year. Your last question there, about, you know, folks who have participated in the couple of calls to date and our perceptions, my perception is that this has been a 100 percent collegial and collaborative process, and we've had some really great discussions about what could be driving some of these differences, and I expect that we'll continue, and we'll be able to at least work toward a consensus as to what may be driving some of these differences.

As far as the last few slides of data, I will just say that I think it's probably more useful if, for the trawl surveys, if you looked at a lag, a couple of year lag, between when the samples occur as juveniles on the shelf, versus when they show up in our video samples, and there is also a difference in Florida, where we have a lot more untrawlable bottom, and, therefore, we don't have as much open shelf, and there is not a clear idea yet where red snapper juveniles are on the West Florida Shelf.

The oyster rubble habitat that we see off of Mississippi and Alabama and areas off of Texas and Louisiana doesn't really exist, to a large extent, off of Florida, either coast of Florida, and so there are questions on both coasts of Florida where juvenile red snapper might be.

One, a lag effect, and, two, could they be in different habitats than what we see in the trawled areas to the west, and, as far as the longline survey goes, fish don't really fully recruit to that until they're almost teenagers, and most of the samples that we report, the size distribution of fish in Florida being mostly less than 500 millimeters, and almost entirely less than 600 millimeters, those fish would be, at the most, five or six years old, and so I wouldn't expect to see them in the long survey catch, to a large extent, but one thing that could be looked at is what the size composition is.

I imagine the size and age composition for Florida samples and the bottom longline survey is going to be lower than what we see even off Mississippi and Alabama, but definitely to the west, and I think, potentially, the Panama City reef fish video surveys, and the FWRI video surveys, are likely to be the best comparison to what we sampled with the ROV off of Florida in the Great Red Snapper Count.

While we're kind of working through perhaps what the best approach is for post-stratification, Rob Ahrens has completed the first cut at this, and so we do have preliminary estimates, where we pulled

out the ten-to-twenty-meter stratum, and so now we have four strata of ten to twenty, twenty to forty, forty to 100, and 100 to 160, and it actually didn't have a substantial effect. The estimate in Florida drops to 45.8 million, which is a decrease of 2.5 million fish, and only about 5.2 percent.

Again, this is a preliminary estimate, and I don't have any tables to show you where those distributions come from, but one of the things -- I just mention it now because one of the things to keep in mind is that if, by doing the stratification, there are low catch, or low observations, in that new shallowest stratum from the Great Red Snapper Count on the Florida shelf, and so we're dropping out areas where we had low counts, or no counts, but that increases the density then of fish in that new next-to-smallest, shallowest, stratum of twenty to forty, and so there's some balancing, where the abundance estimate goes up in that second-to-shallowest and goes down in the shallowest stratum, to match some of these distributional concerns that have been raised here.

As we work through this, maybe there are other stratifications that we think are a better approach, but I will say that our initial cut at this, Rob's initial cut at this, is actually only a drop of about 2.5 million fish estimated in Florida.

CHAIRMAN NANCE: Thank you, Will.

DR. SIEGFRIED: Can I address that, really quick?

CHAIRMAN NANCE: Yes, you may, Katie.

DR. SIEGFRIED: Thanks. I appreciate that, Will. I am encouraged that we're able to actually do the post-stratification, and one of the things that we were concerned about is having issues where we could not get that work done, and it's interesting that it doesn't drop the estimate much, but it makes total sense that it would redistribute that abundance to the other strata, which is just something that we need to continue to discuss, whether this still makes sense, and I know we don't have abundant time, and so we do have to come up with an end goal of like when are we going to be satisfied, and I fully appreciate that.

The other thing that I wanted to just mention, as a follow-up to one of your comments, is that all of the trawl catches are ages-two-plus in the maps, and Adam Pollack let me know that, if that helps any, and then the bottom longline can pick them up as young as four, but it does peak around eight to ten, and that's just some additional background for Will's comments.

CHAIRMAN NANCE: Thank you. Mandy, please.

DR. KARNAUSKAS: Thank you, Mr. Chair. Thanks, Katie, for all the great information and walking us through that, and you mentioned red tide earlier, and I stayed silent, because I think that red tide doesn't impact red snapper, and I think there's pretty good consensus on that, based on what we see in the stock assessment, and there's no signal, and what we hear from fishermen and what's reported in the fish kill.

However, after looking at some of this, I think there may be a red-tide-relevant issue that could potentially be at play here, and I've been honing-in on the area of some of those positive samples from the Great Red Snapper Count data, looking at particularly the area around 83.5 West and 29 North, where a lot of those positive counts popped up in the shallow areas.

That also overlaps with the area of hypoxia from 2014, if you look at Brendan's plots from yesterday, and that is kind of interesting, because we have multiple accounts from fishermen who fish that area who talked about that big hypoxia area kind of wiping out the benthos and wiping out all the grouper, and I have multiple independent accounts of the red snapper recolonization in that area, and, actually, in some very shallow areas.

Actually, a few months ago, I was talking to one fisherman who was diving in that area and said that there were just hundreds and hundreds and hundreds of red snapper juveniles in these really shallow areas that had previously been red grouper habitat, and this particular person actually thought it was so odd, and he didn't believe they were red snapper, and he took pictures, and I think he said he even took them to FWRI, because he thought he might be looking at some like strange mutton snapper or hybrid or something, because it was the first time he had seen red snapper in such shallow waters, and that person noted that they subsequently got fished out over the years.

I think, in the plot on the previous slide, Slide 21, we actually see some evidence of recolonization, if you look at the difference between 2014 and 2015, again in that area where the hypoxia hit, we do see, all of a sudden, a bunch of positives, and so, anyway, this might be something to consider, and I don't know if you could look at the age structure of the positive counts in the shallow Big Bend region, but it's possible that it could be due to this red snapper recolonization impact, if that's actually what had occurred, and I don't know if you could use like hypoxia and no hypoxia as a potential post-stratification for considering some of the drivers in those areas where the red snapper are being found.

DR. SIEGFRIED: Thank you, Mandy. I know Matt Smith is on the -- Matt and Latrice are on the call, and so we'll make notes about that for when we pull this in for SEDAR 74. Thank you.

CHAIRMAN NANCE: Sean, please.

DR. POWERS: One of the things you brought up, Katie, was the size distribution and exploring that in that area, and I just wanted to point out that we had a similar size distribution in Mississippi and Alabama. A lot of our red snapper are small, and so I don't think that's unique to Will's study, and we would have to look at the proportions, and maybe Will has a better idea, but, in general, the whole east had those smaller fish, and so I wouldn't say that was unique to Will, and that is obviously biased by gear. If we just looked at our vertical longline catch, we wouldn't see those small fish, but, when we look at the ROV, we would.

One of the questions I have is the habitat in the ten-to-twenty-meter area, that you're surprised with that abundance of red snapper, and whether you have any plans or will take the suggestion to look at FWRI's side scan, because we don't find many fish in that depth stratum either, but we don't have much habitat, and the state has been doing more and more artificial reef close to shore, and we get red snapper when that habitat is there.

For the other states in the Great Red Snapper Count, I don't think we spent a lot of time in that depth strata, mainly because of the assumption that there wasn't much habitat there, and so I am not sure how different that result is, just because we didn't spend a lot of time in the ten-to-twenty-meter area, but, when we do have habitat, and, in our case, artificial reefs, we do find juvenile red snapper in quite a bit of an abundance, and so just some points there to consider, but mainly the question of, and I know you're going to be time limited, but looking at the habitat maps and seeing if it makes sense, from a habitat point of view, that you have the red snapper in that area.

DR. SIEGFRIED: Thanks, Sean. We will definitely have to follow up with Florida with that scan data. We haven't looked at it fully in the west either, and I would expect the estimates are just quite a bit lower for your state, Sean, because you have such a smaller stratum, and that shallowest stratum is just so narrow for you, but it's bigger for Florida, but we -- That's another question to answer for this collaboration. Thank you.

CHAIRMAN NANCE: Thank you. Paul, please.

DR. MICKLE: Thanks. Katie, I appreciate the presentation, and, when I reviewed this on my own before the meeting, Slide 3, the last bullet, 30 percent of the total abundance in the Gulf of Mexico is in the shallowest depths in the Great Red Snapper Count, and this conflicts with the distribution of SEAMAP and Florida surveys.

Immediately, I just thought, of course, because they're different gears, and so, from that -- You know, gear biases, and efficiencies of those gears, are most likely, and it's pretty strongly understood that gears work in different depths. Temporally they work differently, and over seasons, and even fishing seasons. Different gears will sample differently just because of the way the fish are behaving, and there is longitudinal differences of gear efficiencies, and there is latitudinal differences with gear efficiencies, and so, when you're trying to understand and do some post-stratification, it becomes mind-boggling when you have different gears in different areas and all these different things that I mentioned.

To that point, and this I am taking a very simplistic approach to a very complicated situation, and didn't the Great Red Snapper Count data acquisition happen during the same time and place as the SEAMAP and Florida surveys during the specific year? Katie, that's a yes or no question, right?

DR. SIEGFRIED: The same times and places? I mean, the places may vary, based on --

DR. MICKLE: I'm sorry. Regions. I should have said regions.

DR. SIEGFRIED: Yes, they should all cover the same regions, yes.

DR. MICKLE: Okay, and so like SEAMAP went out and did their trawl survey in the same year and areas, or regions, sorry, and Florida did their same thing too, and so now you have a potential bias metric, because you had different gears, but they were done in the same regions and same timeframes as the Great Red Snapper Count, and can't there be a potential metric used, looking at just bias of the different sampling methods in their own different ways, of all the different characterizations and parameterizations, and I know there will be threshold issues with meeting the requirements of a post-stratification analysis, but it seems like there's enough there to at least start to grasp what's going on, because, circling back to my first point, if you just -- If you just look at this from a completely independent perspective, as I am trying to do here, I would say 30 percent is pretty good, considering the different gears that we used in these different surveys.

It's all relative, right, but, again, all we can do is try to tackle it from the perspective of mathematics, and, if things are happening in the same regions and the same time that they were all done, I think we can start to at least get some directionality on the biases of these different gears. Thank you. Wait. I have another question, after that's addressed, too.

DR. SIEGFRIED: If I can respond to that?

CHAIRMAN NANCE: Yes, please.

DR. SIEGFRIED: The point of that slide that the 30 percent of the total abundance is in the shallowest depths, and so the ten-to-forty-meter depth zone, is just off of Florida. That is not 30 percent of the area of the Gulf, and it's certainly not 30 percent of the area that's exploited now, and so it struck us as odd that most of the abundance would be there, unless it's -- We haven't painted that full picture.

As far as whether everything is occurring in the same time and place and you can do some sort of bias correction, or examine the bias, we're not really sure what the truth is, and so it's hard to know which direction the bias would be, and there is the nuances of time of year that the samples, or the surveys, are conducted, and we don't have the same, necessarily, locations, and so I think it would be a lot more complicated to look at what you're suggesting. It would be ideal, but, again, I am not sure where the truth would be and how we would determine which is biased in which direction.

Just based on the fact that they happened in the same areas, we would have to endeavor on a whole new snapper -- Maybe not snapper count, and it would be a snapper count comparison or something like that, but hopefully I am not missing your point, but that's my initial sort of reaction to your comment.

DR. MICKLE: Mr. Chair?

CHAIRMAN NANCE: Yes, Paul.

DR. MICKLE: To that point, I appreciate it, Katie, and I understand it gets complicated in that way, with the comparisons, and I was just thinking of just, overall, trying to understand the biases and the directionality of those biases, but it may just -- It may be impractical to do so.

My last question is I guess to just the whole group that met and

discussed this prior and what this briefing is based on, and so who is in charge of deciding who does this post-stratum, and how, and then who pays for it?

DR. SIEGFRIED: That's a really good question, and I don't think I'm in charge, but I have been willing to put together the briefing materials and get everybody together for it, and so I have more coordinated it and brought together the folks at the Science Center to contribute.

We did it in a consensus manner, or a whoever is willing to, and, if we need to pay for something, we haven't had to answer that question yet, and I'm not sure, and I would have to ask my boss's boss how much money we would even be able to contribute, but it wasn't the point for us to adjust the snapper count, and so it's probably not in everybody's best interest to have the Science Center run the show, and it was supposed to be a collaborative, consensus-based adjustment, and so, at this point, we've just been able to get a little bit of Rob's time, and I don't yet know, if we would need more time, to pay for any of that, and we haven't had any of the other cooperators, like Will, other academics, say that you're going to need to pay for my time. Everybody has just come to the table and not asked for money yet, and that's where we are at this point, but it's possible that that question will need to get answered, and I don't know.

DR. MICKLE: To that point, Mr. Chair?

CHAIRMAN NANCE: Yes.

DR. MICKLE: This will be -- I haven't spoken much to this point, and so I'm cashing my credits now, and I just want to say that it's been difficult, and I just want to give kudos to everybody involved with this thus far, and please understand that a lot of this stuff -- I don't know of any other way to put it, but the academics, on their side, they're doing it pro bono at this point, and they're helping out, and they're spending lots of resources and time, after the fruition of this grant, and there is no more money in discussing the Great Red Snapper Count, as far as post-quantitative analysis.

On the Science Center's side, it's the same way, and there needs to be some support all around, if we can come together and try to get some path forward, and it doesn't have to be -- This needs to be a philosophical path forward, at some point, and I am meaning this with all the surveys, and I would need to look at them independently, and I am pushing that probably about as hard as anybody on this committee, but, again, there needs to be --

At the end of all this, there needs to be a philosophical kind of agreement of how to go through this, because it's very expensive to do, and I think, on a completely different grant that I am working on, more ecosystem-based, I am being asked to do things post-grant-cycle, outside the scope of work, and it just makes me very angry, and I am kind of difficult to deal with in some of those meetings, and so I have to give kudos to the folks here of doing all those things, and that's all I have to say. Thank you.

CHAIRMAN NANCE: Paul, thank you, and what I see in all of this discussion is a group of individuals who really want to come to consensus and find the correct answers, and I appreciate all of the efforts that are going into this analysis and to this discussion, and thanks to everybody.

DR. PATTERSON: Just to follow-up on what Paul was saying there, that sentiment hasn't been expressed. I think everybody is happy to have these discussions and make sure that we produce an estimate that has been fully vetted and examined, in multiple ways possible, and the only question that has come up so far is that now Rob Ahrens works for National Marine Fisheries Service, and he's in the Pacific Islands Fishery Science Center, and so there's been some discussion about how much time he can commit to any type of re-stratification. He was able to do the initial re-stratification no problem, and so that's really the only sort of clumsy thing that we've run into thus far, but, anyway, that's just from my perspective.

CHAIRMAN NANCE: Will, thank you for that, but I really want to reiterate how just impressed I am that this analysis is going on and the cooperation that's occurring and the willingness to work together to be able to come to consensus and find some answers.

I am having a hard time, just myself, with all the different numbers that are out there floating around, trying to figure out what is the best thing we're trying to use, but thank you, everybody. If there is no further hands, it's a good time to break for lunch, it looks like, and let's come back at 12:45 Eastern Time, and so we'll go ahead and break for lunch now and come back in about forty-seven minutes, or whatever it is, but we'll see everybody at 12:45 Eastern Standard Time, and thanks for the discussions thus far.

DR. SIEGFRIED: Mr. Chair, one quick question?

CHAIRMAN NANCE: Yes, absolutely.

DR. SIEGFRIED: Will you expect me to be on call right at 12:45, again, to answer any other questions, or are you moving to the next agenda item?

CHAIRMAN NANCE: From my intent, we're moving to the next agenda item.

DR. SIEGFRIED: Okay. Thank you.

CHAIRMAN NANCE: So we'll start with Dr. Switzer, and it looks like Adam Pollack, and so the fishery-independent indices will be right after lunch, but, Katie, you'll be on sometime in the afternoon?

DR. SIEGFRIED: I'll be on, but I just wanted to know how on.

CHAIRMAN NANCE: I think you can just be in more of a listening mode right after lunch.

DR. SIEGFRIED: Great. Thank you so much.

CHAIRMAN NANCE: Thank you for your presentation. It was excellent.

(Whereupon, the meeting recessed for lunch on January 12, 2022.)

- - -

January 12, 2022

WEDNESDAY AFTERNOON SESSION

- - -

The Meeting of the Gulf of Mexico Fishery Management Council Standing and Special Reef Fish, Special Socioeconomic & Special Ecosystem Scientific and Statistical Committees reconvened on Wednesday afternoon, January 12, 2022, and was called to order by Chairman Jim Nance.

CHAIRMAN NANCE: We will go ahead and continue on with our presentations, and, Ted, are you ready?

DR. SWITZER: Yes, Mr. Chairman, I'm ready.

CHAIRMAN NANCE: Okay. Why don't you go ahead? We appreciate you being on the call.

FISHERY-INDEPENDENT INDICES UPDATES FOR RED SNAPPER
REVIEW OF SEAMAP VIDEO SURVEY REGIONAL CPUE INDICES FOR SEDAR 74

DR. SWITZER: All right, folks. First of all, I wanted to acknowledge the Gulf Reef Fish Survey team. Although this presentation only focuses on effort from the State of Florida, because the NOAA surveys were covered earlier, these efforts have been a collaborative work in progress for a number of years between us and the video survey teams and the Pascagoula and Panama City Lab, and I would also like to acknowledge lots of funding that goes into supporting these efforts.

For this talk, we were tasked with updating the video portion of the SEDAR working paper that was submitted in support of the stock ID process, to provide insight into the spatial and temporal dynamics of red snapper in the Gulf of Mexico. To do so, we accomplished three tasks. We have integrated 2020 data into the summaries. At present, we have only integrated count data, and we're still in the process of obtaining fish measurements from the video right now, and so those measurements from 2020 were not incorporated.

We were explored to explore, in more detail, depth-related patterns, specifically the ten-meter contours, from ten to sixty meters, and to extend the annual regional trends that were presented in that working paper through 2020, and these summaries will be the focus of the second-half of this talk. However, to really put this into context, and to make everybody understand potentially some of the vagaries in data, especially beginning in 2020, I am first going to present some background on the historical and new Gulf-wide survey designs for the Reef Fish Survey, again clarifying that some of the earlier working paper had combined data from natural and artificial reef habitats, and so, for this presentation, I have separated those.

The body of the talk focuses on the natural reef habitat, but some artificial reef summaries are included at the end, as supplementary material, in case folks are interested, and, because of some changes in the 2020 survey design, which I will, again, touch upon here briefly, instead of simply updating nominal CPUE indices, we did develop some very basic generalized linear model approaches to generating these indices.

To provide folks with a little background of the Gulf reef fish video surveys, these surveys were initiated in the early 1990s, in the area highlighted in blue here, focusing predominantly on shelf break high-relief habitats, Gulf-wide, by the SEAMAP reef fish

video survey,

These survey efforts were expanded in 2006, by surveys in the shallow shelf reef habitats of the Panhandle and Big Bend area by the NMFS Panama City Lab, and that's in green, and then in 2010 by FWRI, which implemented a cross-shelf survey of the West Florida Shelf off of Tampa Bay and Charlotte Harbor. FWRI survey efforts were then expanded throughout the eastern Gulf of Mexico in 2014, into deeper waters, from funding -- It was funding provided by NFWF.

These surveys have always been planned and implemented collaboratively, and it was always the intent to be a collaborative approach to surveying reef fish populations, and, having said that, there are some key differences among these historical surveys. The first, and probably most important, is the spatial differences in areas sampled by the surveys, both in terms of depth and broad regional spatial coverage.

All surveys involve some form of habitat mapping, at least in recent years, although those approaches do differ among the surveys, with the SEAMAP survey focusing predominantly on multibeam sonar, predominantly targeting areas that are currently part of their survey domain.

Panama City is using side-scan sonar, initially on targeted surveys and more recently on some random cross-shelf transects, and the Florida survey has largely relied on randomized side-scan sonar habitat mapping surveys, and I will talk about those in a little more detail.

All three surveys, from the outset, have focused on natural reef habitats, although, beginning in 2014, with the expansion, the FWRI survey has included natural reef habitats. They all involve some sort of spatial and habitat stratification scheme, with slightly different allocation of reef effort that potentially can contribute to some differences in the quality and quantity of reef fish habitats each one targets.

Despite these differences, the core components of the survey have been largely standardized. All three surveys use identical camera technology, similar cameras with similar lenses and similar resolutions, and, at least for the managed species that we're most concerned about for assessment, they have all used the similar abundance metric of maxN, which I will touch on here in a minute, and so, despite some of the design differences among the surveys, because of the fact that the technology is the same, we have the ability to apply some mathematical approaches to combining data

for reef fish assessments.

To that end, Kevin Thompson recently has published a paper highlighting these methods to combine data from these surveys, and this approach has been used for most recent stock assessments of reef fishes, although there are some species that present unique challenges that preclude the ability of using this approach presented here, and, to that end, we're in the process of exploring alternative approaches in a Procedural Workshop 8 that we hope to have completed largely before the red snapper research track assessment in May.

Largely, most of the habitat mapping efforts conducted in association with the survey, especially moving forward, will involve side-scan sonar, although some multibeam sonar is also used by NMFS, particularly the Pascagoula Lab, and, although we have done some targeted habitat mapping, most of the effort in the east, and the new mapping effort in the west, moving forward, will largely involve standardized random surveys, standard survey footprints randomly selected to represent the areas that we're trying to target with the survey.

Along those lines, we're also implementing some focused mapping to revisit sites previously mapped, to get some sense of temporal stability of reef habitats. Again, many large-scale high-relief features are probably permanent, but there are a variety of features, like say red grouper pits, that may be ephemeral over a ten-or-so-year period, and, of course, if we have a large-scale event, like Hurricane Michael, all mapping data may be invalidated, especially for artificial reefs that may be redistributed.

Here is an example of one of these standardized surveys, and the side-scan sonar data that we collect is manually digitized, and we outline, as you can see in the different-colored lines there, the boundaries of each individual reef feature that we identify, and we then characterize those reef features, first in terms of origin, and we can identify geological, biogenic, or anthropogenic sources, in terms of reef habitats, as well as a more fine classification scheme that you can see there in the habitat class.

There may be more different types of habitats out there, but these are the classes that we feel that we can accurately identify, through interpretation of the side-scan sonar imagery.

Here is an example of that, and so these are the five most common hardbottom, natural hardbottom, habitat types that we see in the eastern Gulf of Mexico, and the upper panels represent example side-scan sonar imagery, and the lower panels are video imagery

from those sites, and so we do have a pretty extensive feedback system from our video surveys, which allows us to gain some confidence in the types of habitats that we're identifying on the side-scan sonar.

Because we have applied a randomized mapping approach, the data we obtain from these surveys can provide a lot of insight, in terms of things like habitat composition and distribution throughout the study area. It's important to remember that we're not a habitat mapping group, per se. Our primary objective is to identify reef habitat and ensure that reef fish survey efforts are going on appropriate habitat, but, because of the approach that we use here, we actually can extend the utility of these data a little bit more beyond just identifying sites to sample.

These surveys, because they are randomized, can provide ancillary estimates of habitat availability, by extrapolating to unmapped areas. At present, we have estimated approximately 4,000 square kilometers of hardbottom habitat, natural hardbottom habitat, occurs in the eastern Gulf of Mexico, based on these surveys, and these area estimates can be used to inform effort allocations, and I will touch on that here in a little bit, and these data may have potential utility in future abundance estimation studies, like the Great Red Snapper Count. Again, these estimates weren't available at the time that study was conducted, but it could be a part of future efforts.

In terms of the actual reef fish video sampling approaches that we apply, all of our labs use stereo-baited remote underwater video arrays, and these arrays are deployed for approximately thirty minutes on the bottom. All of these arrays are baited with Atlantic mackerel and squid. As we have talked about earlier on in this meeting, the use of bait has the potential for drawing fish from outside the field of view into the camera, and so, if there is any bias, in terms of trying to think of these data in terms of absolute abundance estimates, the use of bait may bias abundance estimates high, by drawing fish from beyond the hundred square meters or so that the single camera can view.

Historically, we have used orthogonal camera systems that are pictured in the lower-left image. More recently, we have begun to implement full spherical cameras into our survey, in the right example there.

All the data presented in assessments to-date, and all the data that I am going to present today, are from single-camera reads. The abundance metric that we use is maxN, which is the maximum number of individuals seen on a single screen shot, and so we read

twenty minutes of video, and the most we see for individual species is our abundance metric. You can see, in the bottom panel there, that the blue, highlighted image represents one what of our single-camera reads would look like, and it's important to note that we're using the same camera systems in the spherical cameras as we have in our historical single-camera systems.

You can see there, for some species, the maxN approach may -- Again, in thinking in this in terms of an absolute abundance metric, it may be biased low, because all individuals may not appear in the same screenshot at the same time, and so this is, again, potentially a bigger issue for highly-schooling species or sites where species abundance tends to be a little bit higher, but, by applying the full spherical camera read, we can begin to get an understanding of these biases, and we're in the process of doing that.

It is likely that we will be able to correct single-camera versus spherical camera reads, and correct for these biases, although early evidence suggests that biases are probably species-specific. Again, in highly-schooling species, the bias would be potentially a little bit higher than it would be for more solitary species.

For all of the videos that we collect, we also have the ability of obtaining estimated measurements of fish that we see, because these are stereo images that we're collecting, and now, to ensure the quality of the images, of the measurements we obtained, there's a pretty extensive process, using SeaGIS software, where we calibrate all of our camera systems at the beginning and at the end of every sampling season.

We also run a series of reference objects through the systems, to ensure that the measurement accuracy is what we expect it to be, and the SeaGIS software also exports, in addition to estimated lengths, a variety of ancillary metrics that we can use to exclude potentially suspect measurements, things like mean square, which is a measure of the variance of where we're choosing to measure the fish, and then things like distance or angle, that might be used to identify, or flag, suspect measurements.

Now, all the measurements we obtain, because these are in situ measurements, are fork length, which, if we're analyzing data in other measurement forms of still, they need to be converted via known conversion factors.

Historically, again, these three surveys, although collaborative, have been conducted independently. However, in 2020, we received funding from the NOAA RESTORE Science Program to integrate survey

efforts under the Gulf Fishery-Independent Survey of Habitat and Ecosystem Resources, and this new survey design, this new fishery design, was implemented in 2020, and so, moving forward, there will not be independent surveys, but a single Gulf-wide survey.

However, recognizing that we are implementing an entirely new survey design, we have also integrated a series of fixed stations that are representative samples from the historical sampling frames of those three historical surveys that we hope to use as anchor points to begin to link data under the historical end of novel survey designs, moving forward.

There’s not a lot of time today to go through the actual survey design, and that’s something that I can do at a later time, if folks are really interested, but, instead of arbitrarily defining sampling strata, we actually conducted a retrospective analysis of historical survey data, at the multispecies level, to delineate potential factors to use in defining these sampling strata.

To do that, we applied classification and regression trees to identify breaks in potential predictor variables, and these are all predicator variables that we can assess a priori, and so, therefore, they are good choices for a survey design, and we actually analyzed data to define both the spatial and habitat strata for this new survey.

It’s important to note that, moving forward, we didn’t use these as prescriptive outcomes. In other words, we didn’t use these as an exact definition of sampling strata, but we used those to guide our decisions in applying a continuous and consistent sample stratification scheme throughout the Gulf of Mexico.

Spatially, moving forward, this is the new spatial stratification scheme of the Gulf reef fish video survey. Sampling effort is allocated, moving forward, among six broad regional strata, as outlined here, each of which are subsequently divided into three depth strata.

Now, in 2020, when we made the transition to the new survey design, due to COVID impacts, neither of the NOAA labs were able to sample, and so we made the determination, in 2020, to implement this new survey design specifically in the eastern Gulf of Mexico, off of Florida, where we had six years of prior data from the NFWF-expanded survey efforts, but, in 2021, this new survey design was implemented Gulf-wide, and so those data will be available Gulf-wide beginning in 2021.

In terms of habitat stratification, we have applied a three-by-

three factorial design, where habitats are defined by increasing relief, low, moderate, and high relief, and increasing size or scale of individual reef feature, from small-scale features to medium-scale features to large-scale features. The thresholds for identifying these classes vary differently between artificial and natural habitats, but the same general scheme was applied to both habitat types.

Finally, in terms of allocating sampling effort, instead of attempting to optimize the survey for a single species, again given the fact that these surveys provide data for literally dozens of managed reef fishes in the region, we applied, again, a multispecies approach to allocating effort, one that was approximately half attributed by the area of habitat available, and so extrapolated estimates of habitat availability, and so habitats that occur and cover more area and get more sampling effort, and half attributable to managed species richness, and so sites that, on average, observe more managed species get more proportionally more effort, and that results in our optimal allocation scheme that we see for the eastern Gulf of Mexico in the lower-right panel here.

We understand that this approach may result in winners and losers, and we've done some preliminary simulation studies to get a handle on this, but, once we have several years of data, we'll go back and revisit the performance of the new design for taxa, and, if there are key taxa that we need to improve survey efficiency for, we plan on implementing a multi-frame design, where we actually will dedicate specific sampling effort to improve the precision of estimates for some of those key taxa, as necessary.

The next several slides are giving you a perspective on how the new change in design may influence proportionality of sampling effort among habitat or spatial strata, and so, again, the Florida survey, especially, has been reliant on randomization, and so the sites that were initially mapped were randomized, and then, once we identified reef habitat within a survey, we randomly selected which habitats were sampled, and so the historical proportionality of sampling effort over the past five or six years is represented on the left panel, and that could largely be construed as being representative of proportionality of habitat availability.

On the right is the distribution of sampling effort under the new G-FISHER design, and so, for this first slide here, we have natural habitats, and so, under the new design, we can see we have a general decrease in the proportion of low-relief habitats sampled, and those are in blue, and a lesser extent reduction in medium-relief habitat types, sampled in gray, with a notable increase in

the sampling effort intensity on high-relief habitats, which are represented in red, and that's for natural reef habitats.

We see a similar pattern in artificial habitats, except, in this case, it's the medium-relief habitat types, which largely consist of things like reef module construction materials that are reduced in sampling intensity, moving forward, with increasing intensity in both low and high-relief artificial habitats.

Spatially, there's not a dramatic change in the distribution of sampling effort with natural habitats, and there is maybe a slightly more equitable partitioning of effort among all spatial strata, moving forward, in the G-FISHER.

It's a little more notable with artificial habitats, whereas, historically, most of our effort was in the north-central Gulf of Mexico, where, again, artificial habitats are highly prevalent, and we've reduced that effort, moving forward, with a little bit of additional effort in the southernmost regions, to provide a little bit better insight, in terms of what is happening in those habitats.

With that in mind, the rest of the talk focuses on summaries of red snapper observed from the FWRI survey data. Again, these data include 2010 to 2020 for abundance data, and only through 2019 for size composition data. During this time period, FWRI has conducted about 5,000 natural reef camera surveys and over 650 artificial reef surveys, and, again, those were broken down for these summaries, and we compiled a series of spatial distribution plots by depth, and then, to provide better insight in terms of what's going on, we conducted summary CPUE and proportion positive analyses, again by depth and region, to get a better sense of the spatial distribution of those factors, as well as summarized size composition by depth and region.

Again, because of the fact that there were some fairly notable changes in the types and quantities of habitat sampled with the new design, we did apply some very basic annual CPUE models, some generalized linear models with negative binomial error distributions, to develop some IOAs. Note that we did not change these zones from the stock ID report, and understand that there is a different stock ID boundary that will be applied for the red snapper research track assessment, but, for this presentation, we kept the original four zones as-is.

Here is a figure that is modified, and it's very similar to the one that Katie showed in her presentation, but, again, modified a little bit by the fact that artificial reefs are not included in

this plot and the fact that 2020 data are included, and we also superimposed some depth contours, but, again, as you can see here, it's fairly messy, and so what we did is then separate this by individual depth contours.

Here are the first three plots, showing ten to twenty meters on the left, twenty to thirty meters on the center plot, and thirty to forty on the right, and there will be three additional plots on the following slide, and these use the same symbology as was shown in the figure that Katie presented. The black dots indicate sites in which no red snapper were observed, and the red dots indicate sites where red snapper were observed, with increasing symbol sizes representing higher abundances of red snapper at those sites.

Looking at the left panel, you can see that there’s not a whole lot of sampling effort in the Panhandle, in the ten-to-twenty-meter depth range, and that’s largely due to the fact that, as Sean alluded to earlier, natural reef habitats are fairly sparse within that depth range, but, when those habitats were present, as you can see, there are red snapper at most of those sites. Throughout most of the other zones in that shallowest depth, red snapper were fairly rarely observed, and definitely in lower numbers.

As you move into deeper, twenty to thirty and thirty to forty meters, we do tend to see more red snapper, but it’s not really until we get to the thirty-to-forty-meter depth contour and the mid-peninsula and south Florida zones that we really start seeing some red snapper show up.

Again, just more of the same, and so forty to fifty on the left, fifty to sixty in the center, and aggregated to the deepest strata on the far-right panel. Again, one thing to notice here is we do see a fair bit more red snapper in all three of these depth strata, and maybe dropping off a little bit very, very deep in the south Florida zone, and note that especially the Big Bend, as we get deeper, the sampling intensity drops off, and there’s just not as much area at those depths within those regions.

To present this as maybe a little bit easier-to-interpret figure, what we did was summarized CPUE and average number of red snapper per video and proportion positive for all four zones and all the depth strata, and so the left-Y-axis is the CPUE, and the right-Y-axis are proportion positive, and the X-axis are the depth bins.

For all these plots, filled symbols are the actual CPUE data, whereas the open circles are the proportion positive data, and they’re color-coded to the same four zones that you see in the

reference map to the right.

Starting with the Panhandle, as you notice, for both proportion positive and CPUE, they tend to be highest at the shallowest depths, again keeping in mind that that represents a fairly few number of samples, and it's decreasing as you get to deeper waters, but, regardless, red snapper were observed at generally over half the sites that we sampled in the Panhandle, and they generally had fairly high mean abundances of two or more red snapper per site.

Moving to the Big Bend, in the upper-right panel, we start to see more of a parabolic relationship, where abundances and proportion positives are lowest at the shallowest depth bin and, to a lesser extent, the highest depth bin, but still red snapper are quite commonly observed and at relatively high CPUE.

The lower-two panels represent the mid-peninsula and south Florida, respectively, and both of these we tend to not see very many red snapper proportion positive or CPUE less than thirty meters, and they both uptick, again, as you get deeper, but not to the levels that we see in the two northernmost regions.

For each of the four regions, we then also summarized size composition data by depth, and so the first one is the Panhandle, and the left axis is frequency, and this is specifically number of red snapper observed that were measured, and the X-axis is total length, in millimeters. For reference, right about 250 millimeters is thought to be the cutoff for age-two red snapper, and so anything less than that 225 column and less would probably be age-zero and age-ones. Then the lighter colors are the shallowest depth bins, and the darker colors are the deeper bins.

Note that these next four plots that are shown, these size frequency distributions, weren't scaled by effort, and so, as you notice, there is very few red snapper that are in the ten-to-twenty-meter depth bin, but that's only because we had a few samples there, and so you can't really interpret these independently of thinking of effort, but, in general, we tend to see, in the Panhandle, from ten to forty meters, the distribution centered probably right around 350, and most of those individuals are less than 500 or so millimeters total length.

As you get to some of the deeper depth bins, we tend to see a distribution shift to larger individuals, but not a whole lot, and maybe up to around 525 or so.

Off to the Big Bend, again, what we see is probably a fairly similar size composition throughout all the depth strata, and we

tend to see generally fewer individuals that were measured in those deeper strata, and, in the Big Bend especially, very few individuals more than 550 millimeters total length, and so a very, very low number of those larger red snapper, in that zone in particular.

Mid-peninsula, we see, again, very few individuals in those two shallowest depth bins. In the thirty to forty meters, we tend to see, again, really small, young individuals, as we talked about. Much like the Panhandle though, as you get deeper, we tend to see a shift in distribution to larger fish, and very little pattern is evident in the south Florida, and just the number of red snapper observed and measured is just fairly low in this region.

Here are the IOAs, the indices for those four regions, and we have talked a little bit about the influence of changing abundance through time, and you can see here that the four different regions have varying lengths of the time series, and that relates specifically to when FWRI began surveying those regions, and so the longest FWRI survey is the mid-peninsula region, in green, and, again, mean relative abundance on the left and years on the X-axis, and you can see there has generally been an increase in relative abundance through about 2017, and there was a sharp decline in 2018, and, again, we can talk about that potentially due to red tide impacts, with some slight increases since then, keeping in mind the 2019 data are the data that correspond to the red snapper count study conducted in Florida.

In the Panhandle, again, we see a dramatic increase early on and stable, with a slight decline, in the most recent years, and that survey was begun in 2014. In 2016, the Big Bend survey was conducted, and it was a very, very high abundance in that first year, followed by a pretty dramatic decline in 2017.

Anecdotally, if you look at the Panama City survey, which has sampled the same region for a long time series, they also exhibited fairly high abundances in 2015 and 2016, followed by a decline in 2017, and so I’m not sure exactly what’s going on in that zone, but, at least from two sources, it appears to be a real phenomenon, and, again, we’re seeing some evidence of red snapper in south Florida, but, largely, the numbers are low, and, again, maybe a potential influence of the 2018 red tide, and it’s hard to tell.

In summary, this presentation highlights some of the spatial and temporal dynamics of red snapper in the eastern Gulf of Mexico, and hopefully we can use some of these results to inform some of the discussions, and we’ve talked about several of the issues that need to be addressed moving forward, and, again, I think one of

the key ones will be to try to relate the types and quality of habitats sampled by both the Great Red Snapper Count study and this survey, getting a sense of whether there might be habitat-related biases, in terms of the abundances that we see, in addition to potential positive and negative biases associated with baited systems and maxN counts and whatnot.

Moving forward, and, again, this is more just so that you guys are aware, but we do have -- We're in year-three of the RESTORE-funded project, and it was initially a five-year study, and hopefully renewed for a second five years, and so at least, for the next five to ten years, this survey should provide some fairly comprehensive habitat and multispecies abundance data for assessing a variety of issues related to managed reef fishes.

It's well beyond the scope of this talk, but our team is also developing and testing a lot of new technologies and new approaches that we think will improve the survey, including things like automated image analysis and incorporating eDNA sampling into the survey and applying acoustic surveys, either acoustic cameras or active acoustics, to better inform these surveys, and especially in low-turbidity environments, and I expect you will probably see a lot more about those efforts here in the coming years, and so that's all I have, in terms of this, and, if there's any questions, we can open it up. Thanks.

CHAIRMAN NANCE: Thank you very much. Any questions? Ted, I have one. With that design change in 2021, how are you going to be able to show the historical trends?

DR. SWITZER: To do that, we have implemented, again, some fixed stations in the historical surveys, and so those were sampled at least two years, I think, prior to the new survey design, and we continue to sample those, and so those should be anchor points that allow us to at least verify whether our analytical approaches are accounting for changes in survey design.

There is a lot of other potential caveats that we need to address, and so, for example, in the west, we're now going to be sampling in shallow habitats that have never been sampled before, and so some of those will probably rely on some more complex approaches to developing indices, and that's actually a key component of what we're trying to explore with this Procedures Workshop 8, using a variety of case studies to see which approaches can account for a changing spatial footprint and whatnot. The worst-case scenario -- We think we can bridge the gap, and the worst-case scenario is it may be a split index, moving forward.

CHAIRMAN NANCE: Okay. Thank you. Any other questions? Lunch must have made everybody tired.

MR. GREGORY: Mr. Chair?

CHAIRMAN NANCE: Yes, Doug.

MR. GREGORY: How do you adjust for differences in visibility with these -- This is true for all the camera stuff, but you're going to have sites where you have intense turbidity, and you can hardly see anything, even though it's not there, and the Great Red Snapper Count tried to counter that with acoustics, and is that what you were talking about doing in the future, and, if so, in the past, how do you account for the changing visibility?

DR. SWITZER: Presently, when we processed the videos, there is a qualitative estimate of visibility that essentially ranges from one to ten, one being high visibility and ten being low visibility, and we oftentimes will include those in our models, because, essentially, what that does is reduces the field of view of the area sampled on those camera systems.

For some species, it's important, and that's typically a case where we see really wary species, things like gag, that might not come up close to the camera, but, as long as there is at least okay visibility, gregarious species, like red grouper and red snapper, are drawn in by the bait, and so we don't see a whole lot of impacts of slightly decreasing turbidity in those environments.

The biggest concern, and I think what you're mostly referring to, are, especially in the west, we have some sites where either we're sampling in the nepheloid layer or the plume of the Mississippi River is just too dark that we can't get any usable data, and, historically, we haven't -- We have just excluded those sites from analyses, because we haven't had any approaches to deal with that.

The Great Red Snapper Count has shown some utility in active acoustics, and it's something that we're continuing to work on with Kevin Boswell, in terms of how we can integrate those into our surveys, and we have also recently obtained some acoustic camera systems, some flex-view acoustic cameras, that provide fish imagery in these high-turbidity environments.

Our plan there is to conduct a series of calibration work, over the next several years, in the eastern Gulf, where visibility is fairly good, pretty much throughout the sampling universe, to see if we can calibrate ourselves to processing those and identifying fish, and so, for all those sets, we'll have side-by-side visual

estimates of abundance and acoustically-derived estimates of abundance.

Identifying fish to species on the acoustic cameras may be a problem, and some of the things we're trying to do there are can we apply these automated image algorithms to those acoustic cameras, based on reference imagery provided, and so it's something we're trying to address, but we're just not there yet.

MR. GREGORY: Thank you very much. I appreciate it. It was a very good presentation.

CHAIRMAN NANCE: It was. Thank you. Any other questions for Ted? Ted, we appreciate your presentation, and you're going to be on the rest of the afternoon?

DR. SWITZER: Yes, I'm on all day.

CHAIRMAN NANCE: Okay. Perfect. Just in case if we have any questions, during deliberation of things, that you'll be available, and so thank you for that. Adam, I guess -- Are you next, for the longline survey data?

MR. ADAM POLLACK: Yes, sir, I am.

CHAIRMAN NANCE: Okay. It's good to hear your voice.

UPDATED NMFS BLL SURVEY DATA THROUGH 2021

MR. POLLACK: Thank you. What I am going to be talking about today are the updated abundance indices from the NMFS bottom longline survey and the Dauphin Island bottom longline survey for red snapper through 2021.

Just a little background information on the bottom longline survey, and it's a stratified random design with proportional allocation by area, and we sample the entire Gulf of Mexico, from Brownsville, Texas to the Florida Keys, and most of the sampling is usually done between late July and the end of September. There are some data points in there outside of that timeframe, but, mainly, it's during that same time of year, and the survey samples from nine meters to 366 meters, with three depth zones, with it broken down into three depth zones that are listed here.

I should note, for the red snapper indices of abundance, we limit the data to everything less than 183 meters, and that's just because we don't see any red snapper in that deepest depth zone. The time range for this survey is 2001 to 2021. The survey does

go back to 1995. However, in those early years of the survey, they were using j-hooks, and, in 2001, a complete change was made to circle hooks, and there just wasn't very much catch of red snapper during those early years, mainly due to the hooks.

The gear, we put out one nautical mile of mainline, and that has 100 15/0 circle hooks that are baited with Atlantic mackerel, and we soak the longline for one hour. This survey, the data from this survey, is combined with data from the Dauphin Island bottom longline survey, per the recommendation at SEDAR 52.

This is just a very brief overview of the Dauphin Island bottom longline survey, and, Sean, feel free to jump in if I get anything wrong, and it follows a lot of the same methodology that the NMFS bottom longline survey follows. It's a stratified random design, and it's just focused on the nearshore and offshore waters of Alabama, and they sample from April through October. However, to match the timeframe of the NMFS survey, I limit the data to just that from July to September.

The depth range is 3.6 to 125 meters, and we have data from 2010 through 2021, and the gear is exactly the same, and it was designed to match and complement the NMFS bottom longline survey.

This map is just to give you an idea of the 2021 bottom longline sampling, and you can see, off of Alabama, that clustering of points, and those are mainly the Dauphin Island longline samples, and then the rest of the Gulf is what is covered by NMFS, and you will notice that there are very few samples off of south Texas in 2021, and that was due to a vessel breakdown that prevented us from completing all of the stations in that area.

The methodology, to update the index of abundance for this, for the interim assessment, they use a single abundance index, and so, for this, the Gulf-wide data was used, and I ran it with a delta-lognormal model that was vetted through SEDAR. For the variables, we're running year, source, area, and depth, and the final sub-models -- The binomial sub-model included all four variables, while the lognormal sub-model just included year and area.

This is what the updated Gulf-wide red snapper relative abundance looks like with 2021, and note that, in 2020, there was only limited sampling off of south Florida and off of Alabama, because of COVID, and so that year was not included, because it was representing a very small spatial area that did not see very much occurrence of red snapper, and you can see the estimate for 2021 is more or less in line with the abundance indices for the past couple of years, and, if we go to the next slide, we can see the

CVs and the sample sizes associated with each year, and, with that, I would be happy to take any questions that anyone may have about the updated index.

CHAIRMAN NANCE: Okay. Any questions for Adam? The bottom longline -- Adam, it doesn't look like, from that one slide, it doesn't look like a lot of catch off of Florida with the bottom longline.

MR. POLLACK: No, and we typically don't run into a lot of them until we get up around Alabama.

CHAIRMAN NANCE: Is that because of the size, do you think?

MR. POLLACK: That has a little bit to do with it, the size of that hook that we're using. As Katie mentioned this morning, we do see them as young as four-year-olds that we catch, but that peak abundance is typically in that eight to ten-year-old range.

CHAIRMAN NANCE: Okay. Thank you. Trevor.

MR. MONCRIEF: My question was along those lines, and I was just going to ask about the age distribution and size distribution, if it's consistent over the time period.

MR. POLLACK: Yes, it's pretty consistent. If you want to see a better breakdown of the ages and the lengths, you can refer to the SEDAR paper from SEDAR 52, and there's a couple of figures in there that have all the ages and lengths broke out by region, also.

MR. MONCRIEF: Okay. Thank you for that, and thank you for the presentation. It was great.

MR. POLLACK: You're welcome.

CHAIRMAN NANCE: Okay. Any other input from the committee? Luiz.

DR. BARBIERI: Thank you, Mr. Chairman. Adam, thank you. That was a great presentation, and it was very helpful. I was just wondering about what types of habitats are sampled by this survey. One of the things that I think the SSC has struggled with, in looking at results from the Great Red Snapper Count, is really to understand the extent of uncharacterized bottom that holds fish, and having some survey over those habitats, and it may not be directly comparable, of course, if there are differences in gear and implementation of the survey, but at least it gives us a general idea of whether uncharacterized bottom is being sampled in this survey or not. Can you give me an idea if that's the case?

MR. POLLACK: I think I would say the survey is primarily done over the uncharacterized bottom. The only places that we do not set in the Gulf of Mexico are over the MPA areas, like the Flower Gardens, those high-relief areas, and within a mile of like an oil rig or something like that, and that's just because of the vessel limitations that we're working with, but everything else, and you can see it if you go back to the map and the distribution of the stations, and, I mean, we set almost over everything.

DR. BARBIERI: Okay. Thank you, Adam.

CHAIRMAN NANCE: Adam, is it totally random? It's a stratified random design over those areas?

MR. POLLACK: Yes, sir.

CHAIRMAN NANCE: So it doesn't matter if it's sand bottom or coral?

MR. POLLACK: No, it doesn't matter. It's completely random.

CHAIRMAN NANCE: Okay. Thank you. Harry.

MR. BLANCHET: Thank you. This is maybe picky, but I noticed that your strata include state, and, in this discussion today, I have seen, today and yesterday, I have seen two different definitions of what is the boundary between Texas and Louisiana.

A lot of the Great Red Snapper Count stuff uses a rather diagonal line that moves from the Sabine Pass somewhat to the south-southwest, and it ends up approximately off of Cameron, and then a lot of the other information uses the vertical 94 West line, and so, when you are using strata, is that the 94 West for Texas and Louisiana?

MR. POLLACK: We would have to ask Trey Driggers specifically about where the lines of the strata are. For the variables that I used in the model, I used that vertical line at I believe it's 94 degrees.

CHAIRMAN NANCE: Also, I think that they used the statistical stat area grid.

MR. POLLACK: Exactly.

CHAIRMAN NANCE: For the delineation, and so, Harry, it's not that -- For like the Texas closure line, which is that diagonal line that comes out for the boundary of Texas/Louisiana waters, and

this is taking the statistical zones, and so that Stat Area 18 is typically called Texas, and 17 is Louisiana, but there is certainly, in 17, some Texas water component of that.

MR. BLANCHET: Yes, and this comes into -- When we're doing things like comparing some of this stuff to some of the Great Red Snapper stuff, some things that they would be calling fish off of Texas, in this particular case, would be called fish off of Louisiana.

CHAIRMAN NANCE: Yes. Thanks for that clarification. Doug.

MR. GREGORY: Thank you. I noticed that the -- You probably said this in the meeting, but, off of Alabama, did both NMFS and Alabama sample the same area, and, if so, was the NMFS catch per unit effort similar to the Alabama catch per unit effort?

MR. POLLACK: So, yes, NMFS does sample in the same area that the Dauphin Island samples in, but it's just at a much lower rate, and we have about 150 stations that are spread across the Gulf of Mexico, and so, because of the small size of that strata, it gets just a couple of stations assigned to it. I haven't looked at it recently, and I believe we looked at it during one of the last SEDARs, and I believe the catch rates were similar between what Dauphin Island was seeing and what NMFS was seeing in that area.

MR. GREGORY: Okay. Thank you, and this is the same longline survey that is used for grouper?

MR. POLLACK: Yes.

MR. GREGORY: Okay, and so I was curious why this is called the shark/red snapper survey. That's just a curiosity, and it's not important.

MR. POLLACK: That's just the official name of it within the Center.

MR. GREGORY: Okay. Thank you. I appreciate it, and it was a good presentation, Adam.

MR. POLLACK: Thank you.

CHAIRMAN NANCE: Any other questions from the committee? Benny Gallaway, please.

DR. GALLAWAY: Great presentation, and, where I am right now, I'm getting pulled in a hundred different directions, but would you mind going back and reviewing your time series trends again, just

one more time, and I sort of missed that.

MR. POLLACK: Sure, and do you mean Slide 6?

DR. GALLAWAY: I think so, but I'm not sure, but over time.

CHAIRMAN NANCE: This one right here?

DR. GALLAWAY: Yes, I guess that's it, and so that is red snapper relative abundance. Yes. I missed the discussion on that, if there was any, and it looks pretty apparent.

MR. POLLACK: Right, and so basically the only thing is this is the Gulf-wide abundance, and there was that data holiday in 2020, because of COVID.

DR. GALLAWAY: Sure. Okay. Very good. Thank you.

MR. POLLACK: You're welcome.

CHAIRMAN NANCE: Adam, in 2021, there was also that reduced south Texas, if I'm not mistaken.

MR. POLLACK: Right. There was a little bit of reduced sampling off of south Texas.

CHAIRMAN NANCE: Okay. Thank you. Will.

DR. PATTERSON: Thanks, Jim. Adam, thanks for the talk. I am curious, for the time series, if you have the east and west broken out as regions.

MR. POLLACK: I do have that. If I could have control, I can show you, if it's possible.

CHAIRMAN NANCE: Bernie will try to make that happen.

MS. ROY: I just turned it over, Adam.

MR. POLLACK: Okay. Can you see it?

CHAIRMAN NANCE: Yes. Thank you. The top is western Gulf and then eastern Gulf on the bottom.

MR. POLLACK: Correct.

DR. PATTERSON: So quite a different picture emerges when you separate them east and west.

MR. POLLACK: Yes, there is.

CHAIRMAN NANCE: Okay. Any committee questions with -- Will, thanks for asking for that split. Any questions from the committee on this slide?

MS. ROY: Mr. Chair, we have Luiz Barbieri and Trevor Moncrief. I'm unable to put that up on the screen right now.

CHAIRMAN NANCE: Thank you. Thank you for letting me know. Luiz.

DR. BARBIERI: Thank you, Mr. Chairman. Adam, just because I don't remember specifically what you said about this, but did you say that these summaries here exclude that deepest depth zone, the 183 to 366 meters?

MR. POLLACK: Yes, that is correct.

DR. BARBIERI: Okay, but that is an area that you said, right, that is excluded because it doesn't really have, historically, significant numbers, right?

MR. POLLACK: Right. There has -- Over the entire course of the time series, there is zero red snapper occurring in that deepest depth zone.

DR. BARBIERI: Okay. Thank you.

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

MR. MONCRIEF: Thank you, Mr. Chair. Just for my own edification, just to make sure, and we've had a lot of conversation about the east/west split, and is this at the Mississippi River?

MR. POLLACK: Yes.

MR. MONCRIEF: Okay. I just wanted to make sure.

CHAIRMAN NANCE: Okay. That would be, I guess, Stat Zone 13?

MR. POLLACK: Yes, that would be right between 11 and 13.

MR. MONCRIEF: Do you mind if I ask one more question, Mr. Chair?

CHAIRMAN NANCE: No, and please do, Trevor. Thank you.

MR. MONCRIEF: Just a quick clarification, and so I am looking at

basically the 2021 catch, and I see a lot of it that the split is off of the 11 and 12, at the Mississippi River, and I see a lot of positive catch in the Mississippi and Alabama area, and not as much as positive catch across the Panhandle and down into the south Florida, and can you speak a little bit as to what might be driving that decline that we're seeing in the trend from let's say 2013 to 2016 and that drop-off from 2017 to 2021?

MR. POLLACK: It would be pure speculation on my part, on why there was such a big drop there.

MR. MONCRIEF: I mean, not necessarily why, but is there a given area that might be driving it, or is that just across the entire region?

MR. POLLACK: It may be the area off of Alabama, and, if we take a look at just the Dauphin Island survey, and this is their nominal CPUE over time, this is kind of what it looks like, and that area is where most of the red snapper are coming from, or most of the positive catches of red snapper are coming from, and so this is -- That area right here off of Mississippi and Alabama is probably what is driving that decline.

MR. MONCRIEF: So that area is informing the index more, because there is more positive catch there.

MR. POLLACK: Right.

MR. MONCRIEF: Okay.

CHAIRMAN NANCE: It looks like --

MS. ROY: Mr. Chair, we have Sean Powers and Will Patterson with hands up.

CHAIRMAN NANCE: Thank you. I was going to add just that the reason that the eastern has a data point for 2020 is because we have the Dauphin Island data in there.

MR. POLLACK: Right, and so we have the Dauphin Island data, and NMFS was able to sample, but we only sampled south of Tampa.

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

DR. POWERS: Jim, Alabama doesn't have as serious COVID regulations as the rest of the country.

CHAIRMAN NANCE: That's good.

DR. POWERS: Well, we'll see if it's good or not, but, yes, I was just -- The index shows that we've definitely seen it plateau in recent years and decrease from the highs that we saw in 2015 and 2016, and, just adding for the age structure, we're seeing the same thing that we saw, a pretty good increasing average age for a while, until 2016, and now that average age has plateaued as well, and so we don't see that continuing increase in the older age classes that we saw early in the time series. That's it.

CHAIRMAN NANCE: Thank you. Bernie, thanks for putting this up on the screen for me. Will next.

DR. PATTERSON: Thank you. This trend, both in the Alabama bottom longline and in the eastern Gulf bottom longline data, of dropping around 2017 and staying low in the recent years, matches pretty closely with some trends that we have reported for the north-central Gulf, and so south of Alabama and over toward east of Destin, on the shelf out to about 100 meters, and this is a paper that Justin Lewis published about a year-and-a-half ago that shows about a 70 percent decline in ROV-estimated red snapper abundance at both artificial -- Actually, his paper was focused on natural reefs, but we have the same trends on artificial reefs across that time period.

It's interesting, because it matches -- If these fish are starting to show up on the bottom longlines, and right before they become teenagers, to -- I mean, they show up a little bit earlier in the catch, but, really, the peak isn't until they're eight or ten years old, and then this lag, where we see mostly smaller, younger fish on the shallower reefs, this lag between that and the bottom longline catches, it matches this pattern, and it precedes it by a few years, and then, as those fish recruit to the bottom longline gear, then that drop that you see in these data match what Justin reported.

I would just point to another paper that Dave Chagaris led that was published last year that was a paper using an Ecopath with Ecosim model that Dave developed for the north-central Gulf, and he can describe details of that, if folks are interested, in which we examined the effect of fishery removals of invasive lionfish, and going back to Deepwater Horizon in 2010, and tried to understand and parse out the various components of mortality and then did simulations, simulated projections, to estimate, if you had reduced fishery removals, what would that have done to recovery since Deepwater Horizon, and this was across a broad array of taxa and not just red snapper.

That paper is also in the literature that shows the relative effects estimated for those three different stressors on red snapper, and, again, it matches the pattern, or it's consistent with the pattern, that we see here in the empirical bottom longline data.

CHAIRMAN NANCE: Thank you, Will. Any other questions for Adam? Adam, you will be on the rest of the afternoon?

MR. POLLACK: Yes, sir, I will be.

CHAIRMAN NANCE: Perfect. Thank you. Just in case there are questions as we have other discussions, but I appreciate that presentation.

MR. POLLACK: Thank you.

CHAIRMAN NANCE: Let's go ahead and -- Dr. Walter, are you ready?

DR. WALTER: Thank you, Mr. Chairman. I am ready.

CHAIRMAN NANCE: Okay. Why don't we go ahead and have the first, the commercial effort over the uncharacterized bottom discussion?

REVIEW OF ESTIMATED COMMERCIAL AND RECREATIONAL EFFORT OVER UNCHARACTERIZED BOTTOM IN THE GULF OF MEXICO

DR. WALTER: Okay. Great. Thank you, everyone, for the opportunity to present here. This is work that is very similar to what we had presented in April of 2021, and it's work done by Chris Gardner and a whole team of people who I will acknowledge at the end of the slides, and I will also be presenting on the recreational effort as well, which is data from the State of Florida, and Bev Sauls has been working very much with us to try to incorporate that, and the impetus is that we are tasked with trying to determine what fraction of the population might be fished.

One of the key take-homes that we've seen from the Great Red Snapper Count is the population that is estimated there is substantially larger than what the assessment is seeing, and presumably there's a large body of fish that are not currently being fished as hard as the areas that are receiving the bulk of the fishing pressure, and, if we were to then open the fishery up, how much of that biomass would be subject to fishing, or, conversely, would the fishery be able to reallocate itself, spatially, to exploit those fish, or would fishing be concentrated on the known fishing areas, and, since this is one of the key

uncertainties, we tried to provide information and data that could inform that, and then I will go into, at the end, some ideas that I have about how it might be able to be used by us and by the SSC to provide management advice.

The first objective was to determine the distribution of biomass and then distribute both catch and effort for both recreational and commercial and then identify the extent of fished biomass.

One of the more comprehensive spatial mappings of the population is the Karnauskas et al. paper that maps the population in space based on a number of fishery-dependent and fishery-independent data sources, and this puts fish both on natural and artificial structures, and you can see that the relative distribution of biomass seems to be weighted to areas that we have traditionally had a lot of removals, but, also, there is a substantial amount of biomass out on like the Texas and West Louisiana Shelf that are several hundred miles offshore.

This is basically the definition of cryptic biomass that is not as available to the fishery as biomass that would be much shallower or on artificial structures in more heavily fished areas. You can see the concentration of biomass off the Alabama artificial reef zone, in bright red, and this area is heavily fished, and is a well-known fishing location.

Now, something that had not been done before, or at least I hadn't seen it, was a similar mapping of where the Great Red Snapper Count would put biomass according to the strata that the data was collected by, and so what we've done is allocated the Great Red Snapper Count biomass by the regional strata and the depth strata, and one of the take-homes from the Great Red Snapper Count was that there seems to be a substantial amount of biomass in the Florida waters, in particular in the Big Bend, and the shallow depth zone, which is the ten-to-forty meters, is in orange in the upper-right, which is where a very large fraction of the total population is estimated to be.

This is what Katie had presented earlier, and a result that doesn't seem to match where the Karnauskas mapping would put red snapper, and this could be due to temporal change in the population, but it also doesn't match where a lot of the removals and other survey information put the fish.

The objectives here, I think I already went over them, and so I will pretty much quickly go over just what we did for the commercial, and this is a manuscript that is in review, which we think it should almost be completed through review to use, and it

uses vessel monitoring data from the reef fish vertical line VMS to match to landings, to be able to put catch and effort in space.

Then we also used data from the State of Florida, primarily, to map the recreational catch and effort in space off of Florida and then data from iSnapper and a number of other sources to map recreational catch and effort and then overlay, with this spatial map of red snapper, relative abundance, using the Karnauskas map raised to the Great Red Snapper Count numbers.

One of the things we had to assume was which one of those estimates to use, and we used the most recent recalculation using the stratification and design by which the sampling design, which used the random forest, and that was ninety-two million and that we think is probably -- The calculation that honors the sampling design is probably the most appropriate.

Then we identified the fraction of fish biomass defined as having an estimated exploitation rate greater than 1 percent, and this is actually an error, and it should be 1 percent, or 0.01, and I added one other slide to this talk, at the end, from what was posted to the materials, and I will go over that, and it’s because this assumption is simply an assumption, and I think, when we have assumptions that could be fairly strong and influential, the key to addressing that in a management context is to make those assumptions explicit, and, if you can quantify the uncertainty, we have a framework to do that in our buffer between the ABC and the OFL, and I will go into an idea that we might have to be able to develop some range of fishable biomass that could be incorporated into that buffer.

Here is the relative biomass from Karnauskas, raised to the Great Red Snapper Count abundance, and so the map should look the same as Karnauskas in space, but raised to the total population, as estimated by the Great Red Snapper Count, converted to kilograms.

This is the estimated commercial reef fish effort in space, and this is from the vertical line, which is the bulk of the red snapper catch, and you can see, shaded in the gray and black, is the effort mapped in space, and red are artificial structures, and blue are known natural reefs.

Then you can see then that we’ve got a fairly good map of the reef fish via effort from the VMS, and these are algorithms that are outlined in several publications that are able to predict fishing versus steaming, and we restricted it to the Gulf of Mexico vertical line fishery, which is 96 percent of the commercial red snapper landings, and then merged in with different structure,

where we used a --

We matched the data up, and, if it happened to be within a hundred meters of a known structure, we essentially assumed that it was fishing on that structure, because we didn't have that high precision, but we assumed that, if you're likely there, you're either fishing on it or you're fishing the population of fish that are associated with it, and, actually, the data that came from the study we saw yesterday from LGL confirms that the halo of fish around a platform is about a hundred meters.

Here, we've put the commercial catch into space, and what we did was we mapped using the VMS data, and we took the catch per trip and spread it out according to the effort on that trip, and we applied it to ten-by-ten blocks. This allowed us to get at landings assigned to each block, but, since the landings are aggregated to a trip, they're spread out according to the effort.

This was an assumption that the trip-level CPUE, i.e., the CPUE for an entire trip, was spread out to where that fishing occurred, based on the VMS, and it's an approximation, and it's not exact. The VMS doesn't collect catch data, but it allows us to at least get a fairly good, or reasonable, allocation of where that catch has likely occurred in space, and this is the distribution of landings across the Gulf, as estimated by that methodology.

We see that a lot of the commercial landings did not occur in the Big Bend area or off the Florida Shelf area, and it's sort of this middle and southern region, and, granted, this was landings, and this is not discards, and we do know that there are fairly high reports of regulatory discards, where the fishermen may catch, but not have quota, in the commercial fishery.

MR. RINDONE: John, we have a question from Harry Blanchet, and would you mind pausing for a second, so that we don't get too far ahead?

DR. WALTER: That's fine.

MR. BLANCHET: I'm sorry, and this was about the vertical line effort graph, and I believe it was your Slide 5, and a lot of those data points in Louisiana go right up to the shoreline, and I just really -- Including right off of the Atchafalaya River, and I am just wondering why, because that's not reef fish area. Thank you.

DR. WALTER: Okay. Now, we can look at -- Probably there's a slide that shows a little more of a blowup of that area, but, also, a lot of vessels that fish with -- That have VMS, that are reef fish

permitted, are also going to be fishing for other species, and so our effort is not restricted here to red snapper effort. Our catch, however, is, and so if they're fishing for something else.

MR. BLANCHET: I am looking at that area between Vermilion Bay and the Texas line, and that's an area where, for commercial effort, you're going to see shrimp trawling and not much else. I mean, within ten miles of the beach, yes, not much else, because there ain't much there, habitat-wise.

DR. WALTER: Okay, and I don't think it's particularly pertinent for the remainder of the talk, or for red snapper, because, if you look at Slide 13, that we'll get to, we see that there is relatively little red snapper catch there, even if there happens to be effort, and so I'm not sure if -- I mean, I think we can consider this, but, probably from the standpoint of is it going to have an impact on what we're estimating here, I would assume not.

MR. BLANCHET: Okay.

CHAIRMAN NANCE: Okay. Thanks for that question though, Harry. Will.

DR. PATTERSON: To the point that John just said about whether it's going to impact what he will discuss here, some of those data points are actually within bays, like Mobile Bay, that was just blown up there, or here you can see Galveston Bay and Tampa Bay, the effort points.

CHAIRMAN NANCE: Yes. Jason.

MR. ADRIANCE: Thank you, Mr. Chair. Will asked my question, and I was just going to point out that there is effort in bays. Thanks.

CHAIRMAN NANCE: Okay. Perfect. Go ahead, John, but I'm glad that -- Harry, I'm glad you asked that question, just so we can -- At least that's not a question that you're wondering about.

DR. WALTER: Yes, and there would be effort in bays that would be seen in the VMS. However, the question would really be whether a trip is both a bay and an offshore red snapper trip, in which case we would then allocate red snapper into the bays, but, as you can see from where we're estimating the harvest from, it's not putting red snapper catch into bays, which probably means that there is distinct trips between a red snapper trip that's largely more offshore and this bay fishing effort.

CHAIRMAN NANCE: Thank you, John.

DR. WALTER: Okay. Which one are we on?

CHAIRMAN NANCE: I think you were on 6, if I'm not mistaken.

DR. WALTER: Okay. Let's move to 6, and I will catch back up. Okay. Let's move to 7. Here is the distribution of effort, and we've got the fair bit of effort in, as pointed out there by Harry, in the shallow areas, particularly in bays, and that's likely due to vessels transiting in there, I guess, but, as you can see, this is the distribution of effort from the VMS data.

This is the distribution of landings on the basis of this, and we probably do have a little bit of a smearing of landings into the shallowest areas, because of that, and, still, I guess what I would ask people is does this look like where landings are likely to be coming from, and, if it doesn't, then maybe we have an issue, but this is our best cut at trying to allocate landings in space, for which our other data that we would have would be simply the logbook reports that would not have the spatial resolution that we get from VMS data.

Here is our estimate of the spatial-explicit landings, and then we are able to allocate them by making the assumption about the structure that the catch was coming from, according to natural structures or artificial structures or unknown, and here we've got a time series, and this was done for four different years, with a mean catch from natural structures of 22 percent, and this is of the known effort, 25 percent on artificial structures, and 53 percent from unknown, where we either weren't able to allocate it, because we didn't know the structure was there, or it wasn't close to anything known.

If we assume the same fraction, that there's a lot of stuff that we just don't know about in our map, which I think it's pretty clear, to anyone who has worked on this, that there is a lot of structure out there, and it isn't mapped, and then we would say that 54 percent of the catch was on natural structure and 46 percent on artificial structure.

In the spatial allocation of catch in the recreational sector, in April of last year, we presented a methodology that was largely based on a lot of assumptions about where fishermen fish, in terms of distance from shore and on artificial or natural structure, and we were able to get a lot better data from the State of Florida, both for-hire and headboat survey data, as well as from private surveys, and we were able to much better assign the recreational catch into space.

For Alabama and Mississippi, we had to use the proportion of catch by depth, and, for Louisiana, we had Louisiana creel data assigned to the proportion of catch in east Louisiana and west Louisiana, and we applied the Texas iSnapper point data to provide a proportion of fishing by distance from pass. We did the same for Texas, and we used the distance by pass to assign the effort into space.

This is -- We weren't able to assign data specifically to artificial or natural structure based on any of that data, but we were able to assign it by region and depth bin, and this is the spatial mapping of recreational landings, and so this is also landings and not discards, and so what we see is that much of the recreational catch is concentrated off of the West Florida Shelf, and off of Alabama, as well as off of Louisiana, and there is very little catch occurring in the deepest waters off of Louisiana and Texas, as we would likely expect that those areas -- That you wouldn't need to run that far offshore to catch red snapper, when you can catch them in shallower waters.

This is the sum of both the recreational and the commercial landings. Previously, in our last presentation, we had to take some average -- We did this separately for recreational and commercial, and we had to take some average. What we were able to do now is add up both recreational and commercial in space, and where we're going with it is to then divide that with the biomass raised to the Great Red Snapper Count numbers, to then estimate exploitation rate in space.

CHAIRMAN NANCE: John, Roy has a question.

DR. WALTER: Please.

DR. CRABTREE: John, the previous slide, didn't it show, in the Big Bend, that the catch rates were higher in close to shore in the Big Bend area than they were further offshore?

DR. WALTER: That's correct. The landings, yes. There are landings of about 600 to 1,400 kilograms per ten-by-ten block.

DR. CRABTREE: Those depth lines are -- Is that ten meters nearshore, or is that twenty?

DR. WALTER: This is -- Where is the legend here? I believe this is ten, and I think this might be twenty, and I think this might be thirty, and I think that's forty and fifty and sixty.

DR. CRABTREE: So it's showing catches between ten and twenty meters.

DR. WALTER: Correct.

DR. CRABTREE: Okay.

CHAIRMAN NANCE: Thank you, Roy. Okay, John. Thank you. Beverly has a question.

DR. WALTER: She is probably going to clarify my thinking there or answer the question for us.

MS. SAULS: John, I just wanted to clarify, and this says rec landings, but I think the data we provided included discards, and maybe Chris Gardner could answer what this is. Is it landings or is it total catch?

DR. WALTER: Chris, are you on? Can I phone a friend?

CHAIRMAN NANCE: The million-dollar question.

MR. CHRIS GARDNER: Those are landings and not discards.

CHAIRMAN NANCE: They are landings and not total catch?

MR. GARDNER: Yes, sir.

CHAIRMAN NANCE: Okay.

MS. SAULS: Okay. Thank you.

CHAIRMAN NANCE: Beverly, thanks for that question. Okay, John.

DR. WALTER: Okay. This was summing them together to get the total catch by ten-by-ten block. This is exploitation rate, and this is a blow-up of the exploitation rate, and so what we did is we divided the catch by the biomass, the Great Red Snapper biomass, and that would generally be a 2019 estimate, though the sampling spanned 2018 and 2019, and then the 2019 catch, and here we see exploitation rates ranging from quite low values, which would indicate almost very little exploitation, up to fairly high values of greater than 50 percent.

Then this is the mapping of exploitation rate over the entire Gulf, and then what we -- The commercial exploitation rates, when we tried to put that into what that means in real numbers, an exploitation rate of less than 1 percent was usually less than 500

pounds removed from a ten-kilometer-by-ten-kilometer cell, which would mean very little exploitation rate, which likely -- It's almost untouched. I see we've got two questions here, and I'm happy to take them.

CHAIRMAN NANCE: Benny Gallaway, please.

DR. GALLAWAY: I think I answered my own question, and I was wondering how you got biomass from the Great Red Snapper Count, but I see that that was for the Florida area, and so you had size and estimated weight from size or something? I'm just curious.

DR. WALTER: We had the Great Red Snapper Count numbers that we raised to the Karnauskas mapping of biomass, and so I believe we used -- Chris can answer that question, and what did we use for the size, the average size, of fish?

MR. GARDNER: We used a regional size, as defined in the last stock assessment, and so SEDAR 52. That was divided east and west of the river.

DR. WALTER: Okay.

CHAIRMAN NANCE: Benny, did that answer your question? Sean.

DR. POWERS: I am going to let Mandy go first, if she had something to add to John's --

CHAIRMAN NANCE: Mandy, did you have something to that specific question?

DR. KARNAUSKAS: Yes, and Chris already chimed-in, and so no problem.

CHAIRMAN NANCE: Okay. Perfect. Okay, Sean.

DR. POWERS: John, just so I understand, essentially, you took Mandy's relative abundance in each of those cells and essentially just applied the ninety-six million to it, to get the number of red snapper?

DR. WALTER: Yes, that's exactly right.

DR. POWERS: Okay, but my first question was actually on the exploitation pattern, and there's a strange pattern off of Alabama, and a little to Florida, that there is higher exploitation in the really deep water, and am I reading that graph correct? It's relatively low on the reef zone, which was nice, but surprising,

and high exploitation in the deeper areas, and is that the correct interpretation?

DR. WALTER: Yes, and I would take those bright red in the deeper water with a grain of salt, that there's very little actual biomass there, and so, when we assign a small amount of catch there, it says that there's high exploitation. Likely, what is going on there is some smearing of the effort on a trip, to say that the red snapper were -- That that much red snapper were caught there, when I think that's probably due to very low abundance, and that's also -- It's not going to have a big impact on the overall --

DR. POWERS: Gotcha, and I didn't think of the denominator, that there's relatively low abundance. Okay. Thanks.

CHAIRMAN NANCE: I think Jason.

MR. ADRIANCE: Thank you, Mr. Chair, and if this question -- If you want to wait until the end, I'm fine with that too, and I'm a few slides behind, and I was curious about the iSnapper application to the Louisiana effort, and I understand that anyone can use iSnapper, but I'm just curious how many points you had there and then a little more detail on how that distance to pass -- Was that somebody leaving out of Texas and fishing off of Louisiana, or was that folks leaving out of Louisiana, and how you split the LA Creel east/west, and sorry that that's a lot.

DR. WALTER: Thanks, Jason. I will let Chris -- If he can respond to that, and I have some answers to some of them, but he would have the details. Chris, do you want to address that, or do you want to get back to us on that in a couple of minutes?

MR. GARDNER: I have some of that right now, and a few others I will have to get back to. As for the iSnapper data off of Texas, we used that just as a proportion of effort from distance to pass, and so looking at different ports and how much effort, and then relativize that by the actual landings reported to the state.

When we were using the LA Creel data, we did not use Texas to Louisiana, and we looked at proportion of landings in east and west Louisiana, and I can't remember -- I will have to get back to you on the exact break on that, and then we used the distance from shore, assuming that both Texas and western Louisiana would be similar.

MR. ADRIANCE: To that, Mr. Chair?

CHAIRMAN NANCE: Yes, please.

MR. ADRIANCE: I guess I don't want to peel the Great Red Snapper Count scab, but so you're applying distances folks traveled out of Texas and using those metrics and making an assumption of what folks would have traveled out of Louisiana, and am I understanding that correct?

MR. GARDNER: Yes, sir, and that's something that we would definitely want to improve upon. However, right now, that was the most accurate data we could come across, and that's just distance from pass, and so actual effort and landings were based on Louisiana.

MR. ADRIANCE: Okay. That's likely not a good assumption in the distance, but thank you.

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

DR. PATTERSON: My question has been answered. Thanks.

CHAIRMAN NANCE: Chris, did you have a question for yourself?

MR. GARDNER: No, sir. My hand is just still raised.

CHAIRMAN NANCE: Okay. Thank you. Trevor.

MR. MONCRIEF: Mine just kind of goes down Jason's route, and I wasn't going to bring it up, but, since the conversation was kind of steering that way, using a similar depth structure for Mississippi as there is to Alabama. I know we're a small one, and we probably don't have much impact on exploitation or anything else, but that one is a little -- We have two, I think, little bit different fisheries, and we have a smaller-hook fishery, essentially, and so -- I just wanted to bring that one up.

DR. WALTER: If we go to Slide 11, I think we can look at whether this is going to be influential, and I can see there that, maybe Louisiana we have pushed effort, or catch, further offshore, and I guess I would defer to the experts there, if that seems like maybe that is what might be happening and why we get yellow way out. In that case, I will comment on what the impact is going to be by that a little later on, but I think these are excellent points, and this is why we get multiple eyes on it.

CHAIRMAN NANCE: Perfect. Ryan, did you have a point or a question?

MR. RINDONE: I did, Mr. Chair. Considerate of what Trevor just said about some of the disparities between the way that the fleets

behave in Mississippi and Alabama, even with those combined, that might, in and of itself, be a better proxy for a fair amount of the effort that's coming out of Louisiana.

Basically, from like around the Lake Charles area, there in western Louisiana, you're going to have some effort that is coming out of there, and then there's not an awful lot that is going on, or expected to be going on, until you get closer towards eastern Louisiana, but still distanced traveled from shore there isn't -- It really isn't going to be comparable to what happens in Texas, where you have large center consoles in both states, but the distances that they are running are definitely not comparable.

Boats out of Texas are running anywhere thirty to eighty miles, or farther, just depending on who is doing the driving, and, off of Louisiana, they simply don't have to run nearly a far to get into the fish, and I see Jason put his hand back up though, and so he might be able to elaborate on that a little bit further.

CHAIRMAN NANCE: Yes, and so Harry first.

MR. BLANCHET: I will let Jason go first.

CHAIRMAN NANCE: Okay.

MR. ADRIANCE: Thanks. Ryan, I think you're mostly correct, but I think that blue, where you get into -- Just right there to the western portion of Vermilion Bay, there is a fair amount of effort, and it's not great, but there is a fair amount of effort that travels a long way out of that area that head south from there, in what is that large blue zone, but I will let Harry add to any of that.

CHAIRMAN NANCE: Okay. Harry, please.

MR. BLANCHET: Okay, and so, off of Cameron, that bright yellow, is probably an artifact of using travel distances for other areas. If you're going out of Cameron, and you're going snapper fishing, you're heading to that blue zone and not the yellow zone, at least recreationally, and probably commercially.

In terms of the eastern part of the state, a lot of what is painted orange there is seasonally hypoxic, and so at least inside the about twenty-five-meter contour, or maybe the thirty-five-meter contour, somewhere in there, you're going to be dealing with hypoxic conditions pretty regularly over a lot of that area.

Now, beyond that, yes, you get a good bit of -- You don't need to

travel very far out of someplace like Venice, or even Grand Isle, to go fishing, but, if you're talking out of Cocodrie, or if you're talking out of Cameron, Freshwater Bayou, that western part of the state, yes, you're traveling, and a long way, and so I think that there's probably some misassignment, but I don't -- You know, if we're just talking about it at the state level, I don't know if that matters a whole lot. I mean, that's a little bit beyond where we're at right now.

CHAIRMAN NANCE: Yes, and, Harry, some of the stuff that I was looking at on some of the other charts we're looking at, there's a lot of what they're calling artificial reef in that area, and I'm not sure if those are oil platforms and things like that that are being fished.

MR. BLANCHET: There are, but a lot of that -- There are artificial reefs within fifteen miles of the coast, and those are primarily intended for things like speckled trout and sheepshead, those more nearshore species, and not -- Because, when you're talking about -- If you go off of Cameron, even on a good day, you're talking about maybe twenty-five parts per thousand, when you hit the beach, and not the thirty-plus that you're talking about off of central Texas or central Florida.

CHAIRMAN NANCE: Yes. Benny.

DR. GALLAWAY: I just wanted to say that it was our experience, being over there for a couple of years, that Harry is exactly right, in terms of the distance traveled. It's mainly an offshore fishery, and the nearshore reefs is -- He's right, again, of course, and he lives there, and it's more of trout and red drum effort, and, also, we need to remember the mouth of the Mississippi River is a pretty dominant factor in that region, especially along that nearshore, carrying with it all the things like hypoxia and increased algal blooms and so forth, and so thank you.

CHAIRMAN NANCE: Thank you, Benny. Okay, John.

DR. WALTER: All right. Well, after the thorough vetting of that map, which I think I could see some issues with it, what I would like to do is go to the map of the commercial effort, and that is Slide 9, and I just wonder if this might be a better map of recreational off of Alabama, if we don't get something better, and I would just put that out there, that it might actually address that hypoxic zone, and it might also address the Cameron and how the fishery is probably oriented offshore, and that we probably did pick up and assign effort into the shallower areas, which probably isn't red snapper habitat.

That's what I'm hearing, and perhaps we could revise that. In general, the impact it's going to have here is it's going to spread out effort into areas that maybe there really is no effort. If there is no biomass there, then there's no exploitation, and so it's rather immaterial.

If there is biomass there, it's going to create a greater footprint for the fishery, and so, when we get to the final number of what fraction of the total area that might be fished, or total biomass, it might increase that fraction, because there will be some element of exploitation in an area that there really probably isn't effort for red snapper.

Let's park that for now, if you don't mind, and we could probably revise this, but I'm not sure -- And evaluate whether it's going to have an impact for the overall numbers, and let's get to I think Slide 15.

In this case, we see both the commercial and the recreational exploitation rates in space, and so we do see that impact of that western Louisiana, what looks like there is exploitation rate, exploitation, there, probably because there is little biomass there, and so the numerator being low. The denominator being quite low means that it's up into that blue.

Some of the other exploitation rates, recreationally, on the deeper zones, probably take it with that other similar grain of salt, but this is where we've mapped the exploitation, both commercially and recreationally.

Then, if we were to assume a harvest rate of 1 percent as fishable, then we get about 38 percent of the total biomass is in currently fished area, and, if you go to the next slide, or, actually, the next one after that, I believe, and it should be -- Is there a Slide 17? I guess I didn't get the additional figure, which I wanted to show, on that looks at that 38 percent, because I think we need to see the variability around that, because I'm not particularly pleased that it's having to choose one single number.

Here, this is the percent of biomass currently fished by various states, and Alabama and Mississippi are combined, commercially and recreationally, and we see Florida has a fairly low percentage of the biomass that's fished, according to that 1 percent exploitation rate, and Alabama and Mississippi are higher, and Louisiana is relatively low, and Texas is also fairly low. Overall, only about 80 percent of the total population gets any exploitation.

DR. PATTERSON: John, on that last one, is the way to read that that, if the total is the sum of the commercial and recreational, and the commercial and recreational fisheries are fishing in separate areas?

DR. WALTER: If they're fishing in separate areas, then it is the union of them that gets the total footprint of the fishery, and so the -- Because what we did is we summed the total removals, and so, even if they are different spatial footprints for commercial and recreational, if the sum total of them leads to higher than a 1 percent exploitation rate, we said that that biomass is fishable. Did that answer the question?

DR. PATTERSON: Yes, I think I got you. Thanks.

CHAIRMAN NANCE: Was that a question from you, Will?

DR. PATTERSON: Sorry. Thanks, Jim.

CHAIRMAN NANCE: You're welcome. Thank you. Any other questions for John at this time?

DR. WALTER: Okay. Then we can get to the summary. The last time we did this, in April, we took a best guess on the population that would be vulnerable to the status quo footprint of fishing, and, there, we got a value of 22 percent, but this is a weighted average of the recreational and commercial. What we've done now is summed up the total removals in space so that we don't have to do that weighted average, and we can get something that's more exact, and we have more recent recreational data to inform the spatial location, notwithstanding that it seems like our assumption for Louisiana seems to be off.

The revised estimate is that about 37 percent of the total population abundance appears to be fished at a level above 1 percent exploitation rate. If we allow a lower exploitation rate, we get a larger fraction of the biomass available, up to, if you assumed that all of the biomass was available, then you would have the total population is available, but the key question I think that was before the SSC was what fraction -- How would the fishery fish on a much larger biomass, and would it be able to spatially reallocate itself to fish on that, or would it fish much heavier on particular spatial locations that are known to fishermen and heavily fished?

It's probably unlikely that the fishery would be able to completely reallocate itself, and, knowing fishermen, they would probably go to the areas that they have numbers for and that they are familiar

with, until there's a reason to leave.

I think the other take-home here is the spatial mapping that we see, at least from the Great Red Snapper Count, doesn't match the Karnauskas spatial distribution, and, if we estimated exploitation rates based on the Great Red Snapper mapping, where remember the figure that I showed that showed really high biomass in the Big Bend area, it would then suggest, because there is very low removals there, very low exploitation rates in that area.

For whatever reason, the fishery doesn't seem to be catching them in those areas, yet that's where the mapping of the Great Red Snapper Count would put them, the question being would they be accessible, or would the fishery fish in areas that are currently known fishing areas.

Then there is also a take-home that there is commercial and recreational effort in those areas, in the Big Bend, but it doesn't seem to catch red snapper, and that is at least commercially in the landings, and recreationally in the landings we saw, but I think also in the recreational discards, and it doesn't seem to have the catch rates that other areas do, and so there might be some rationale for the re-stratification, or post-stratification, that we talked about, to at least post-stratify the shallowest areas, which might at least put the fish more in the depth zone that they seem to be more abundant in.

Trying to kind of take this back to how we would be able to use this in an advice framework, if you wanted to be able to allow for the uncertainty in how the fishery would reallocate, then the total biomass that would be available would be a function of how that fishery would allocate itself.

Given that we've got an OFL based on the Great Red Snapper Count numbers, the ABC could potentially be decremented by what the fishing -- How fishing might reallocate itself, in terms of that might be what would be desired to catch out of it, and we may not want all of the fishing concentrated on the known fishing areas, and I haven't fleshed out how we might do that, but I think it's a consideration that this group needs to have as they help task the Science Center for how we might be able to best use the information for us to achieve the request from the council to reconsider the Great Red Snapper Count revisions and the other information that is available to us.

With that, thanks for the opportunity, and I'm happy to take further questions, and I look forward to our further discussion on how we're best going to use this information.

CHAIRMAN NANCE: I appreciate that. Will, we'll go ahead and take your question, and then I'm going to have a break. After your question and answer, we'll take a break until 3:00 Eastern Standard Time, and so, Will, your question, please.

DR. PATTERSON: Thanks, Jim. John, this Big Bend issue is obviously important, or at least illustrates the issue at-hand here about reallocating, and could effort be reallocated into areas that aren't currently estimated to have high exploitation rates.

When Bev Sauls' group's data was shown earlier, it indicated there wasn't much effort, recreationally, in this region, at least for red snapper, and then the -- The commercial folks in the eastern Gulf of Mexico that have reef fish permits, and even some that have red snapper IFQ, but don't have very much allocation, they have been talking, for several years, about this issue of increased abundance of red snapper in the eastern Gulf of Mexico, but the having very little access to the fishery, and then the high cost of leasing allocation, means that they don't make, or earn, as much money on their catch.

This is an issue that has come up, at least the fishermen in that region have talked about considerably, and that has implications about whether the commercial effort could be redistributed in that region. If there's no IFQ available, then it just wouldn't.

CHAIRMAN NANCE: Okay. Bev, to that point?

MS. SAULS: The earlier data that Katie Siegfried was talking about was our for-hire data, but these data include private recreational boat effort from our State Reef Fish Survey, and that is what is driving those catch rates in that area for John's analysis, and we do see quite a bit of recreational effort up there, but we just don't see as much for-hire effort.

CHAIRMAN NANCE: Okay. Thank you. Chris, to that point.

MR. GARDNER: Bev answered the point that I was going to make about the private --

CHAIRMAN NANCE: Okay. Thank you. Mandy.

DR. KARNAUSKAS: Just to Will's point about the potential reallocation of commercial effort in the eastern Gulf of Mexico, I have heard the same concerns about the lack of allocation and the inability to access from eastern Gulf of Mexico fishermen, but I wonder how much of that VMS activity is actually eastern Gulf

fishermen, and it's possible that quite a bit of it is from western Gulf of Mexico boats that do have allocation, and, if that is the case, then that shows that there is quite a bit of ability to redistribute, if they're coming all the way from the western Gulf to the eastern Gulf.

CHAIRMAN NANCE: Yes. Thank you. We'll go ahead and break now, and we'll come back at 3:05. We'll have a fifteen-minute break, just to -- Then get your thoughts together, as we move out of these presentations, because we have the rest of the afternoon where we're going to have to make some decisions, and certainly motions, and it's nice to have discussion, but motions kind of push us in a good direction, and so, anyway, be thinking about that, and we'll see you all at 3:05. Thank you.

(Whereupon, a brief recess was taken.)

CHAIRMAN NANCE: Let's go ahead and restart. John is still on, and let's go ahead with questions for John. Sean.

DR. POWERS: John, first, I mean, I really want to compliment you and your group, and this is a really neat way to look at this issue, and it obviously was a lot of work, and I can't imagine how much in getting the VMS data in a usable fashion, and so, really, great job, and it does give us a very different perspective than we had at the last meeting, and that's what I wanted to talk about, this 22 percent versus 37 percent of the stock that is exploitable, and so the first question is so does that mean that essentially -- That's pretty much all the stock on the artificial reef and natural banks, right, because, if I remember the red snapper count breakdown, about 50, or 55, percent, was on uncharacterized bottom.

DR. WALTER: It's particularly -- I don't know if it's just by chance or it does -- It is about the same figure.

DR. POWERS: So that is a little, I guess, at first, hard to believe, just thinking about the distances traveled, that the rec has to travel, at least in Texas and Louisiana, but I guess, for the commercial, the distances traveled aren't as determinate as the recreational. The other thing is how much of this change from 22 to 30 percent affected by the change in the overall number from 111, or 113, million to ninety-six million? Did that affect it at all?

DR. WALTER: The way it's going to affect is in that decision we made about the 1 percent exploitation rate. If the denominator is higher, as in 118, then there will be less area for the same removals, with a 1 percent exploitation rate, which is the reason

that I am not thrilled with making a cutoff like that, and so, if we said it was 110, or ninety-six, it would change based on that assumption of the 1 percent.

We could use that 1 percent as part of our -- The uncertainty in our advice, and, like I said, some way to buffer the ABC from the OFL, and that might be a way to account for what I think is a key uncertainty about how the fishery is going to allocate, and, second, how the fishery lack of reallocation might affect the population, because the challenge we have is, if it is a bigger population, we don't know if it's more productive and whether fishing on the known habitat is going to have adverse effects. Those are kind of two unknowns that, if we could somehow quantify an ABC, that might be the place to do it.

DR. POWERS: There really are a couple of different adverse effects you could have. I mean, you could envision, since we have a lot more biomass, or numbers, with the Great Red Snapper Count, and maybe recruitment overfishing isn't as probable, but, given the heavy exploitation in the limited areas, we can see a lot of growth overfishing, and there is definitely some indication, in our neck of the woods, that we're having some growth overfishing, or at least the average size is decreasing quite a bit.

It's obvious -- The one assumption, I guess, and the last question I have, is so you have updated the commercial and rec effort to reflect what is going on right now, but relying on Mandy's work, on her paper with her colleagues, still has us with the 2011 distribution right, because that was largely the congressional supplemental sampling, and so how do we reconcile those two, or am I getting that wrong? I mean, the commercial and rec is a composite of multiple years, and Mandy's is just the 2011 distribution?

DR. WALTER: Mandy's is the 2011 distribution, and you are exactly correct, and, to the extent that the spatial distribution of the stock has changed, then that would put fish in different places, but I think we have to look at our other data sources to determine how much that has happened.

The commercial effort is 2019 effort, so that we could overlay the 2019 removals on the 2011 spatial distribution raised to the Great Red Snapper Count, and I think the ninety-six, or ninety-seven, million.

DR. POWERS: The rec effort is what year?

DR. WALTER: The rec effort is multiple years.

DR. POWERS: Multiple recent years though?

DR. WALTER: Yes.

DR. POWERS: Okay. Thanks, and, I mean, it really does give us a different impression than we had the previous meeting about how much of the stock is exploitable, and I guess we just have to debate what that means, as far as catch advice. All right. Thanks, John.

CHAIRMAN NANCE: Thanks, Sean. Any other questions for John? Okay. Seeing none -- I'm sorry. Dave.

DR. CHAGARIS: Thank you. John, just going back to the Karnauskas spatial distribution of the biomass, and I'm looking at Slide 4, and maybe Mandy is the better one to address this, but we see that high abundance, that yellow, down off the shelf break in south Florida, predicted in the biomass distribution, and we see that pattern a lot.

Every time we do these species distribution models, whether it's with adult red grouper, or here with red snapper, or amberjack, and I have come to believe that it's sort of an artifact of what predictor variables are used and maybe not as much of the actual abundance, and so, for here, it's probably the depth, or maybe rugosity, or relief, on the shelf break, combined with the percent gravel or rock that is in that area, but yet all the data, the catch data and the fishery-independent data that we saw before, didn't show high catches in that area.

I'm wondering, and could that be a major source of bias, where we have this large area that is not -- Where there are no landings coming from in this final estimate, and which direction that might go.

DR. WALTER: In terms of bias in the spatial distribution, I think you're on to something, Dave. That area does seem to be kind of an odd one, in terms of the species distribution modeling. However, on the exploitation rate, because there is no removals there, it gets almost no exploitation rate, in which case it wouldn't be considered in our 37 percent as exploitable biomass, even if we did put it there.

It's unlikely to be -- The fishery would have to reallocate itself to start fishing there, if indeed there was biomass there, and so, in terms of coming up with that number for what's fishable, I don't think it would have a major impact.

DR. CHAGARIS: Okay. Thank you.

DR. WALTER: Mandy, do you want to weigh-in? I think you've had your hand up for a while.

CHAIRMAN NANCE: Mandy, to that point, please?

DR. KARNAUSKAS: Yes, and I was trying to answer Will's point, and Dave's as well, and this figure right here actually shows a point that I was going to make, and this is the relative biomass map raised to the Great Red Snapper Count abundance, and, John and Chris, correct me if I'm wrong, but I think the way that we ultimately decided to do that was to use the Karnauskas et al. distributions within each state, but use the state distributions, or, I'm sorry, the state-by-state absolute numbers.

To Will's point earlier about the 2011 versus the present day, if you had rebuilding in the east since 2011, that would be accounted for in our analysis, because we're using the Great Red Snapper Count estimates, like east and west, and Chris is chatting me that that's correct, and so that is accounted for.

Dave, to your point, you're exactly right that the predictor variables are latitude and depth, and then we use the USSEABED estimates of habitat, to use a weighted average, and so that sort of increased abundance you see on the sort of southern tail of Florida is a result of those predictor variables, but note that the overall abundance in Florida is being raised because the Great Red Snapper Count estimates are so high.

For example, in the Karnauskas et al., we weren't suggesting that abundance in that area of Florida was as high as say around Louisiana or Texas, and so that is an artifact of the raising to Great Red Snapper Count numbers.

MR. RINDONE: Mr. Chair, to Dr. Karnauskas' point?

CHAIRMAN NANCE: Yes, please, Ryan.

MR. RINDONE: Just, I guess, so I understand here, Mandy, with this map that's up right now, if, since 2011, the stock has grown, or shrank, in density, spatially, within some of these cells, as we move say from the Panhandle area into western and southwestern Florida, that wouldn't be picked up, but the total number of fish -- Basically, for that state, the total number of fish is correct, but their spatial distribution may have changed from 2011 to 2018. In other words, these concentrations may be different if what you had done had looked at the spatial distribution from the same year,

and I'm just trying to make sure that I'm understanding this.

DR. KARNAUSKAS: The fine-scale spatial distribution is unchanged, but the east-west balance, or the state-by-state balance, is changed, and so I think the Karnauskas et al. had estimated west-east abundance roughly on the ratio of I think it was about 60/40, and the Great Red Snapper Count estimates is about 50/50, and so this would be along that 50/50, just because what we used in this analysis would be on the 50/50, or whatever the Great Red Snapper Count ratio was, but, within each state, the distributions will be following the Karnauskas et al. 2011. Does that answer your question?

MR. RINDONE: Right, and I guess it frames my question, and I guess my question was that, if those within-state distributions had changed with time, and, you know, like we've had fishermen tell us that they're seeing greater concentrations of red snapper in west-central and southwestern Florida, in places where they hadn't seen them before, and this is recent, very recent years, especially like say the last four years or so, that we've been hearing more and more of this, and that wouldn't have been represented by this.

DR. KARNAUSKAS: Exactly correct. Exactly correct.

MR. RINDONE: Thanks. Mr. Chair, you have Will Patterson up next.

CHAIRMAN NANCE: Will.

DR. PATTERSON: Thanks, Jim. The back-and-forth between Ryan and Mandy there addressed the first question that I had, but the second is that the assumption here then is that the 2011 estimate of the spatial distribution of the red snapper biomass across the northern Gulf of Mexico is more accurate in 2020 than the Great-Red-Snapper-Count-derived estimate of the spatial biomass of the stock, and is that correct, John?

DR. WALTER: We're not making any assumption about which is more correct, but we used the one from the Karnauskas. The one from the Great Red Snapper Count is shown in one of the slides, and we didn't use that one, and we could redo the analysis with that one, and then it would show almost no exploitation in the Big Bend, even though there is a lot of biomass there. In terms of which one is more correct, one was designed to map spatial relative abundance, and one was designed to get total population abundance, and so they kind of have different purposes.

DR. PATTERSON: Okay. Thanks.

CHAIRMAN NANCE: Thank you. Josh, please.

DR. KILBORN: Thank you. Actually, Ryan and Mandy addressed my question. Thank you.

CHAIRMAN NANCE: Okay. Thank you. Dave.

DR. CHAGARIS: I think I still had my hand up from before. Sorry.

CHAIRMAN NANCE: That's okay. Any other specific questions for John?

DR. WALTER: Can I ask a question?

CHAIRMAN NANCE: Absolutely.

DR. WALTER: I think this is the question I have, and is do people believe the Karnauskas map has substantively changed, and do we have evidence to suggest that? We would like to use the most recent information that we've got.

CHAIRMAN NANCE: Sean.

DR. POWERS: Obviously, Mandy's work, even though it's 2011, we had the advantage that, essentially, they used all the same gear types, and we know, with the Great Red Snapper Count, the gear types varied by region, and so I can see the argument that, for a relative index, that is superior.

The problem is, if I remember correctly the study, that was all vertical longlines and bottom longlines, and so it was missing the small fish that make up so much of the eastern area, since we relied on video more heavily, and so is it -- Which one is better?

I mean, I think that the data Mandy used is better when you're talking about the larger fish, but, when you're talking about the distribution of all of the Great Red Snapper Count, I don't see how you can separate that from the fact that we need those smaller fish in the distribution, and we know that smaller fish and larger red snapper don't always overlap, and there is ontogenetic movement, and so there is some reason to believe that the vertical longline catches and the bottom longline catches won't reflect the distribution as much.

I am concerned that we're using the 2011 data, and we're dealing with a totally different size distribution of the population than what we had in the red snapper count, and so that's what my thoughts are.

CHAIRMAN NANCE: Thank you, Sean. Will.

DR. PATTERSON: Thanks, Jim. The selectivity of the gears that went into the different estimates clearly is different, but, also, we have seen, today, estimates from FWC, in Ted's presentation, of changes in the relative distribution just among regions in Florida over the past handful of years, and so some of those are pretty substantial.

Then, in the work that Adam Pollack presented from the bottom longline survey, we also see differences in the relative distribution of the large fish, and so this brings in what Sean was just mentioning about selectivity, but also that, in the western Gulf, you've had an increase, until about 2017, in the bottom longline survey estimates of relative abundance that sort of peaked and plateaued, whereas, in the eastern Gulf, it was a little more jagged in the middle years, but then, in the last few years, both the Dauphin Island Sea Lab survey and the NOAA survey have dropped and stayed low.

Even east and west, you start to see some differences in biomass trends that would suggest that the biomass probably isn't distributed the same today as it was in 2011.

CHAIRMAN NANCE: Okay. Thank you for that input, Will. Mandy.

DR. KARNAUSKAS: Just a quick response to Sean's point, and I am going back to the paper, and it's been a while, and we did account for the potential bias selectivity, and it's Equation 8 in the paper, and we did that by recognizing that gears have a particular selectivity and comparing it against the abundance at-age from the stock assessment, and so there is assumptions wrapped up in there, but we did attempt to account for that selectivity.

That being said, I think that we largely didn't catch, or didn't sample, age-ones, and so there is that caveat, and I think age-one and two were modeled together, and so I would just put that out there on the selectivity issue.

CHAIRMAN NANCE: Thank you. Roy.

DR. CRABTREE: I am going to ask a question that's not specific to this presentation, John, but I guess more to workload issues and what can be done, and so, in Katie's presentation, she sort of had a plan forward slide, with the post-stratification work for Florida, which I know other people are involved, but I guess you guys would be coordinating that, and my question is can -- That

seems to be an important issue, and my question is are we going to be in a position, do you think, to get that done in time for the March SSC meeting? Is that even possible to resolve it?

DR. WALTER: Mr. Chairman, do you want me to --

CHAIRMAN NANCE: Yes, please.

DR. WALTER: Okay. Thanks, Roy, for the question, and I think getting us towards the workplan, and I am looking at Katie's slide on what's the plan, and a lot of this -- The Center can do kind of a revision of what we had provided back in April, and that's relatively straightforward to do, the spreadsheet exercise, once we've got a number, and that's really the main thing, is we need that what is the final, final number.

Then we need guidance from the SSC on what we would do with that, because one of our key decision points, that never was resolved, was for the ABC. We got a number for the OFL, based on an assumption about the fraction of the UCB that might be accessible, and we used 13 percent of the UCB to get the total number that came from the random forest.

We could -- Perhaps a revised version of that is to use something coming from this analysis to get what fraction of the total might be fishable, and then use something like the 37 percent, or some range on that, and that could give us what could be fished either for an OFL, and then something could be decremented, based on something like less -- We might believe that less is actually possible to be fished, which would be an ABC, and, once we have some of that guidance, then it's straightforward to redo that analysis.

There's the questions that Katie posted on looking at temporal patterns in the survey data, and this answers -- This could look at questions about whether the population shifted, look at size composition, and then those two are a little more in-depth, and there's not a clear answer as to what would lead to a decision point, and it would help us to inform some of the questions we've got, but, without saying what we would do if we saw a temporal shift in the timeframe, I don't know that those would lead to actionable advice.

Then there's this post-stratification, which I think is front and center in providing that number, particularly because we, right now, have a couple of numbers for the Great Red Snapper Count, and then we still have, in my mind, this spatial allocation of a lot of fish to the shallowest depth zones that doesn't seem to match

the distribution, even from our surveys, and a post-stratification might be a straightforward way to address that and put the fish probably more in that twenty-to-forth depth zone that seems like they're more abundant.

I don't know if it will change the overall number, but at least it might better inform a spatial map, noting that spatial mapping wasn't the primary goal of the Great Red Snapper Count, for this purpose, to know where the fish are to inform what could be fished might be useful. That's a long-winded answer to I think we can achieve what we did in April, if we can get some guidance on how to do it.

DR. CRABTREE: Okay, and, if we did do the post-stratification analysis, it would change the abundance estimate for Florida, and so it would change the OFL as well. One of the things that I have struggled with on all of this, and, I mean, I looked through the interim analysis, and I could come to a choice on one of those, I think, but then so you've got an OFL, and now you need to somehow buffer that downward to adjust for the uncertainty that we have, and I have struggled to come up with a way to figure how much of a buffer, or a reduction, we would want to apply to it.

A lot of times, we use a P* analysis, but I am not sure anything like that could really be done here, and it seems, to me, those types of analyses often don't capture all of the uncertainty, and I'm afraid that would be the case here, and so that's one of the things that I struggle with, but I understand what you're looking for, in terms of direction, and hopefully we can get to some of that today.

CHAIRMAN NANCE: Thank you, Roy, and thank you, John. Luiz.

DR. BARBIERI: Thank you, Mr. Chairman. John and Roy actually raised several of the points that I was going to talk about, if we move in the direction of this next agenda item that would guide the discussion for this afternoon, which is request for updated interim analysis from the Southeast Fisheries Science Center for catch advice for the March meeting.

To get to that point, I think we're going to have to think about a sequence of steps here, and Roy brought some of those up, and we have to start from a total number, and so we have to -- Before we get to even evaluating some of these analyses here, the results here that John brought up, and others brought up, I think we need to zero-in on some agreement on how do we get to that total number.

This question, from Katie's presentation earlier today, is have we

decided yet on whether we want to continue with the post-stratification of the Florida data, and, if we're going to do this, how is that going to be done? I mean, we had a lot of good discussion this morning, and I think that going and back forth -- I couldn't really come to a point where I thought that we had a conclusion on whether we would proceed with a post-stratification or not, and there were mixed feelings about whether the FWRI and other survey data were fully representative of the abundance patterns of red snapper along the West Florida Shelf relative to what we saw from the Great Red Snapper Count.

I know this seems to be a little bit of a diversion here, but I think getting to that number is important, and I wonder if we have to go back to that discussion of the post-stratification and the Florida data, if that's what we want to do or not, if that's appropriate and the best course of action, and the committee needs to weigh-in on this, and then, after we resolve this, I think a discussion about how we handle data from the other states -- Are there different survey data from other areas of the Gulf that can also help adjust some of the numbers for those areas, or that's not the case, or unnecessary, but, to me, those are some of the initial discussion points here that we need to have, Mr. Chairman, before we move into some of these other issues. Thank you.

CHAIRMAN NANCE: Thank you, Luiz. Will.

DR. PATTERSON: I think this issue about the spatial distribution of biomass, obviously, is critical to this analysis, and the SSC can decide what members think is the best approach, as far as mapping, or estimating, the spatial distribution of biomass or whether it makes sense to use this scaled Karnauskas et al. estimate of the spatial distribution of biomass and also consider an estimate derived from the Great Red Snapper Count distribution, estimates of the distribution of biomass.

In the latter, and maybe that sort of brackets, or at least captures different sources of uncertainty that we've been talking about here, but, you know, there are a couple of outstanding questions, and, one, which Luiz raised, is about stratification in other regions, although maybe his statement was broader than just stratification, but, if you add this extra -- If you divide the shallowest stratum in Florida into two, and so now you would have four strata instead of three, would you automatically suggest that be done for the other regions, or how would that be examined?

Then the other issue that's out there, which we got a little taste of this morning, is what to do about Louisiana and the distribution of red snapper biomass in Louisiana, because that hasn't been

resolved yet either.

CHAIRMAN NANCE: Okay. Thank you, Will. We need to move into then, I think, our Item Number XVIII, I guess, and so Summary Discussion and Potential Requests for Updated Southeast Fisheries Science Center Red Snapper Interim Analysis, and so here's where is the meat of our meeting. Ryan, why don't you go ahead and take us through the scope of work, and then we can begin discussion.

SUMMARY DISCUSSION AND POTENTIAL REQUESTS FOR UPDATED SEFSC RED SNAPPER INTERIM ANALYSIS FOR CATCH ADVICE FOR THE MARCH 2022 MEETING

MR. RINDONE: Sure thing, Mr. Chair. You guys have -- As Dr. Barbieri pointed out, you have some decisions that you need to make, and we talked about this a little bit at the beginning of the day, about the kinds of information that the Science Center would need to know in order to produce a catch analysis that would be useful to you without them having to produce several iterations of one, to try to cover different plausible scenarios that you guys might be interested in seeing, and so we're striving for efficiency here.

Obviously, the primary decision is what number are you going to pick, and so we've seen iterations of the Great Red Snapper Count from the original that you did the peer review on of 110 million fish, and the revised estimated that came from that peer review of 118 million fish, and then we skip ahead to the revised estimate of ninety-two million fish, based on modifications that were requested by the Science Center.

Consideration also needs to be given to the proportion of the uncharacterized bottom that is considered vulnerable to fishing pressure, and also the post-stratification of Florida abundance data by depth strata, and the trends from the other fishery-independent surveys, like the video surveys and the NMFS bottom longline survey.

It's a lot of information to consider, but the degree to which you guys can make decisions about what you like, what you don't like, what you need to see more about, will certainly help all parties involved in this process to understand where we are going. Right now, the plan anyway is that the Science Center would bring a catch analysis for your consideration to the March 2022 meeting, but, of course, that's dependent upon you guys providing some of the information that they need in order to be able to do that. Otherwise, there's too many different possibilities.

CHAIRMAN NANCE: Thank you for that synopsis. Just for my own -- There is so many numbers, and the 110, the 118, and the ninety-two, correct me if I'm wrong here, but only Florida had the changes that occurred, and is that correct, and Texas, Louisiana, and Mississippi/Alabama stayed the same through each of those iterations?

MR. RINDONE: I am going to look at Will.

DR. PATTERSON: No, that's not correct. What happened between 110 and 118 is the random forest stratification was abandoned, and it went to a simple stratified random sampling design, to produce the 118 million, and then, to go back to the ninety-two, the random forest was followed, but the other changes, which were recommended through peer review, were carried through to that ninety-two, and so that's why it's below 110.

The other thing that I would add here is that I shouldn't even say the number ninety-two, because the actual estimate is the -- It's ninety-seven million, and it's 96.7 million. I didn't say anything when John was going through his presentation, because I think that number is going to change, based on the re-stratification work in Florida, but the actual number from the random forest estimate was ninety-seven million, and the ninety-two was from Lynne Stokes and her additional analysis, which was slightly lower than what Rob Ahrens and Zack produced, which was ninety-seven million, and so, here, the third number should actually be ninety-seven and not ninety-two.

CHAIRMAN NANCE: Okay. Thank you. Luiz.

DR. BARBIERI: Thank you, Mr. Chairman, and, you know, when we think about Louisiana, right, and I know we had a lot of discussion about this earlier today, but I think that, if we're going to consider, have to consider, a number that encompasses the whole area of the Gulf, and not just Florida, but the other states, other areas, as well, we're going to have to have some resolution about how to handle the number for Louisiana, and I wonder if we would be ready to do this today, because I think I heard Benny, and, if you're still listening, Benny, it would be great to hear from you, and I think I heard Benny say that they are really ready to bring that response to our previous review, November review, of their work, and they're going to be bringing that back to us in March.

CHAIRMAN NANCE: I think we reviewed it in September, Luiz.

DR. BARBIERI: Or September. Yes. Thank you.

CHAIRMAN NANCE: Okay. You're welcome. I will throw this out right now. Right now, the only Louisiana estimate that we have, from the SSC's perspective, is the one from the Great Red Snapper Count, and we know there's another estimate out there, but we have not seen that final number on that. Benny.

DR. GALLAWAY: Luiz is right that we are very near completion of responding to all the comments, especially the criticism received relative to sampling design, and Dr. Raborn has really gotten into the modern literature looking at model-based versus design-based inference and so forth, and I think he's done a relatively good job, and I think we will have that to you for your review, and you can decide whether he did a good job, within a few weeks, or sooner than that, maybe. Thanks.

CHAIRMAN NANCE: Okay. Benny, thank you. Obviously, one scenario is we wait for everything until March, when we have the LGL analysis come to us, and then we can decide on which Louisiana component to use, and so that's an option, or we can use -- The other option is we can go forth with what we have right now from the Great Red Snapper Count, which includes Louisiana, and then make recommendations on that number, realizing that, if we get a new number in March, we would have to then ask for an additional analysis, if we chose to change that Louisiana number. Thoughts on that, committee?

DR. GALLAWAY: Jim, to that point, if I may speak to it?

CHAIRMAN NANCE: Absolutely.

DR. GALLAWAY: I might give you what I know about the results, and that is that the analyses -- The absolute estimate is pretty similar, very similar, and our best estimate is six to nine million off of Louisiana, closer to nine million, with very high biomass, as we talked about earlier, and we have addressed the sampling issues, and we've gone through and checked the individual categories of habitats and reexamined it in every way possible.

We have looked at our mark-recapture studies on artificial reefs and petroleum platforms, and we've got good agreement on those, and we are comfortable that those numbers are in the ballpark, and so I will just put that forward, and I know that you can't accept them on my say-so, and you need to look at it, but I think you'll find the numbers will pass muster. Thanks.

CHAIRMAN NANCE: Okay. Thank you, Benny. I appreciate that. Ryan.

MR. RINDONE: Thank you, Mr. Chair. Just again reminding you guys of what the council's motion was, which was to look at the Great Red Snapper Count and the data surrounding it for this reconsideration of catch analysis, and I know that we have repeated this several times throughout the day, but this was the basis of what the council wanted you guys to look at, and noting that you guys have already used that survey for setting, or for recommending, OFL advice, which was put into the framework action and was transmitted to NMFS for implementation.

CHAIRMAN NANCE: Thank you, Ryan, for that reminder. Jim.

DR. TOLAN: Thank you, Mr. Chairman. I was going to bring up kind of the exact same point that Ryan just brought up. I am only hesitant in the fact that we are, as a body, on record making sure that these two studies are very separate, and I would be hesitant to make a call today, without the LGL study being given the final blessing to come before the SSC, and so I still think they need to be treated separate, and, even though the numbers off of Louisiana, in the Great Red Snapper Count, are imputed numbers, they're still the numbers that we agreed on, and so, having gone on record as saying those are separate, until the LGL study is final, I think we should keep them that way. Thank you.

CHAIRMAN NANCE: So, Jim, would your recommendation be to go ahead and make motions and so forth using the Great Red Snapper Count, so we can move forward in providing the Center with the ability to provide catch analysis, catch advice, for us in March?

DR. TOLAN: To that point, Mr. Chairman, I think that was your first option that you had laid out just a little while ago, and I think, as we're on record now as using those numbers, I think we should at least move forward with those, until we get another study that's been fully finalized.

CHAIRMAN NANCE: Perfect. Thank you so much, Jim. Roy.

DR. CRABTREE: If we were giving catch advice today, that might be where we are, but, assuming that the LGL numbers are finalized by the March meeting, and they do successfully address all of the issues that have been raised, we would then have to deal with that number at that point, and the fact that we did something previously -- We now would have new information that we would have to either accept, or we would have to provide a rationale of why we're going to stay with the Great Red Snapper Count number for Louisiana.

The other thing is, if the post-stratification analysis is done successfully, we're going to come in with a somewhat different

number for Florida that we'll see at the March meeting, and so I guess my question for the Center is, if we give you as much guidance as we can now, but then we come into March and we decide we're going to use a somewhat lower number for Florida and a lower number for Louisiana, can you adjust the interim analysis to reflect that during the meeting, so that we can have that, or can you look at what is done by LGL and the post-stratification analysis and have that done prior to the meeting, so that, if that's where we go, we could have that?

Science evolves, and things change, and this is all coming on us pretty fast, and so it's not surprising to me that we're making some changes and these numbers have moved around some, and so that's my take on it. These seem to be the two major issues, and there is some guidance separate from this that we need to give the Center, and I understand that, but I guess, from Katie or John or whoever, is it possible to be able to adapt the analysis if we change numbers?

DR. SIEGFRIED: Mr. Chair, I can address that.

CHAIRMAN NANCE: Yes, Katie, please.

DR. SIEGFRIED: The short answer, Roy, is, yes, we can adapt to changes in the overall number pretty easily. Our spreadsheet can adjust for that. You all have the harder decision of how to include -- Whether to accept the Louisiana numbers, but also if it's a one-to-one. If you just give us a new total number, we can very easily, on the fly, adjust the interim advice.

DR. CRABTREE: Okay.

CHAIRMAN NANCE: So what you're saying, Katie, is, if Texas stayed the same, and Louisiana changed, and Mississippi and Alabama stayed the same, and a little tweaking in Florida, that total number is what you're needing and not the -- Do you need it by those areas or just the total?

DR. SIEGFRIED: We can -- The total is broken up into those different parts, and so we would assume that you would give us like a new number for Louisiana, but it's basically done with that total number, and it's a very quick exercise. I mean, we wouldn't want to be running what if it's fifteen different iterations of it, and what we assume would happen is you would say, okay, we're accepting or not accepting Louisiana, and use the new numbers or not, and that's one flip, and then Florida is adjusted down or up, whichever, and that's another flip, and those would result in one rerun of that OFL advice.

DR. CRABTREE: You will have those numbers, it sounds like, in advance of the meeting, the LGL numbers well in advance, and so it wouldn't be like you haven't seen the numbers until the last minute.

DR. SIEGFRIED: Right, and so I think I finished answering the question that Roy had, but I had one other question about the total number, and is it appropriate to ask now, or should I wait?

CHAIRMAN NANCE: No, absolutely. Go ahead.

DR. SIEGFRIED: So Will's point earlier that that ninety-two million fish that's on the screen now is actually ninety-seven, we have been going through all of the different iterations of the total number, the final, final, is what we're hoping to get to in March, but is there a way that we can cover where the ninety-seven and ninety-two million fish estimates come from, or you all have completely rejected the ninety-two million fish number, the Stokes versus I think it was Rob's -- So Lynne's versus Rob's rerun, and then has the SSC decided if they are --

CHAIRMAN NANCE: No, we haven't. As far as I am concerned, we haven't talked about -- I just wanted to know where these three numbers on the screen came from.

DR. SIEGFRIED: Okay.

CHAIRMAN NANCE: So Will said that, from the ninety-seven, and I understand where that came from, but we have not discussed -- In my mind, we haven't discussed what we would use for a total going forth for the Great Red Snapper Count.

DR. SIEGFRIED: Okay. Thank you.

CHAIRMAN NANCE: You're welcome. Luiz.

DR. BARBIERI: Thank you, Mr. Chairman, and, to Ryan's clarification earlier, and you're right, Ryan, and I did go to look at the council motion, and the request is to consider new information and revised report of the Great Red Snapper Count to provide catch advice for red snapper in 2021 and beyond. Yes, I guess this is direction to us not to mix into this the LGL study number.

If we decide to go this way, is there anybody that can talk a little bit about any revisions to the Louisiana estimate that were done to achieve the reviewers' comments? I think the peer review,

and the SSC, had expressed a number of concerns regarding the original Louisiana number, just because it had imputed data into some areas, and I don't know if there were specific recommendations from the reviewers and direction on how to get that number revised and updated.

CHAIRMAN NANCE: Luiz, just for my own benefit here, I'm not sure that it would be wise to go into the analysis of the LGL at this time, since we don't have anything in front of us, and so I'm satisfied with what Roy asked Katie and Katie's response that, at our March meeting -- We want to provide input to the Center today, so that they can have some stuff for us in March, but, if the LGL analysis -- If we accepted that, and we were satisfied with all the -- From the report standpoint and things like that, and we wanted to put that number in, that would be possible in March, but I think to hash out whether we would use that number now or not -- I'm not sure that it would be a good use of time.

DR. BARBIERI: I agree, and, if I may, Mr. Chairman.

CHAIRMAN NANCE: Absolutely, Luiz.

DR. BARBIERI: I agree with you completely, and I was referring to the Great Red Snapper Count estimate for Louisiana and not the LGL. I asked about the LGL number, yes, before, and there was a clarification that this is not going to be really considered, and that number is not going to be considered as part of this analysis that is to be done for catch advice, which is fine, and, I mean, I think I think that's in line with the council's motion and request, but I am trying to find out whether were concerns regarding the original Great Red Snapper Count estimate for Louisiana and whether those concerns were addressed, because we have not been discussing that.

CHAIRMAN NANCE: Okay. I'm sorry. I misunderstood you, Luiz. I'm sorry.

DR. BARBIERI: No problem, Jim.

CHAIRMAN NANCE: Ryan.

MR. RINDONE: Thank you, Mr. Chair, and it was just a matter of process, really. Because of what we have noticed for you guys to have in front of you to review, we really ought not reanalyze the LGL study at this meeting, and there will be ample opportunity to do so, probably at the March meeting, and that's our next opportunity anyway, and I really don't want to have a webinar for you guys in February.

CHAIRMAN NANCE: No.

MR. RINDONE: Admin staff are looking at me with very angry eyes right now at mentioning that. You guys will have a thorough and complete opportunity to look at the work that LGL has done to address reviewer comments and their modified analysis and a full description of their sample design at an upcoming meeting, but that's outside the scope of what we've noticed for discussion at this meeting.

CHAIRMAN NANCE: Thank you. Unless I have totally been sleeping here, but I thought, at the meeting when the finalized Great Red Snapper Count report was given, that all of the questions and concerns from the reviewers were addressed, and those were evaluated and input into the final report, and those were the numbers that were provided at our meeting two meetings ago that we approved, and so I think that has been done, but, Doug.

MR. GREGORY: Thank you, Chair. Two meetings ago, I think we did do that, and we suggested that it become part of the research track for red snapper. Now, I understand that, from what we were told this morning, the research track is delayed, and it's going to be a long time coming, but, procedurally, when this was first suggested to us, I think back in 2020, I kind of jokingly said, well, you ought to call this an exploratory assessment, because it's not an interim assessment, and I say that, and I have been accused, by people being persnickety, but SEDAR has been very adamant, over the twenty years it's been in existence, as to the definition of what an assessment is, interim assessment, benchmark assessment, update assessment, research track assessment, operational assessment, and this is not an interim assessment, according to the SEDAR language.

The other thing is we have an ABC Control Rule, and we have a mechanism, that Roy alluded to, for estimating ABC from OFL, but we don't have any sort of guidance for this, and interim assessments, in the past, have only provided us with ABC recommendations and not an OFL, and they have only been based on survey data, as we saw this afternoon, the video survey data and the bottom longline survey data, and, in my mind, those are the two datasets that we should be discussing as the combine them or which one do we use for an interim analysis.

This seems totally out of character for the entire system that NMFS has developed for assessments for the Southeast U.S., and, if they want to call it a special assessment, because I understand the need to get something in place before the research track

assessment is done, and there may not be a desire to do a traditional assessment, because it's hard to fit this into a traditional assessment, but maybe just the terminology.

Call it a special assessment, or a special great red snapper assessment, something different, because this is completely out of character for what we've done in the past, and we have great concerns and uncertainties about a number of aspects, and, ultimately, when we do that ABC recommendation, we've got to say this is the best available science that we know about, and I am very nervous about this, and so I just wanted to bring that up, and I have said something like this at every meeting, and I will probably continue to do so, because it just strikes home to me that we're kind of rushing into something, and bouncing back and forth off the wall, and not knowing our direction. Thank you very much.

CHAIRMAN NANCE: Doug, thank you. John.

DR. FROESCHKE: I sent, just to kind of hopefully get everyone focused on the discussion points that we're hoping to have, the meeting discussion, or the summary, from the March meeting. In there, it has on there the decision points that you arrived at the last time, meaning the point estimate and the amount of UCB included and the percent exploitable, and so I guess those were the numbers that we're hoping to get the guidance on, moving forward, and so I was thinking we could bring that text up, and we could look at it, and then maybe that would prompt us to discuss the items we need to get that information to the Science Center.

CHAIRMAN NANCE: Okay. Thank you, John. We can go ahead and bring that up, and I will take these three individuals here. Will.

DR. PATTERSON: Sorry. I lowered my hand a while ago.

CHAIRMAN NANCE: Okay. Thank you, Will. Jim.

DR. TOLAN: Thank you, Mr. Chairman. My initial concern about the review of the LGL has been pretty well addressed, but I just wanted to pass along to Benny that I am very much looking forward to the final LGL report and using those Louisiana numbers in some fashion coming up, and so thank you.

CHAIRMAN NANCE: Jim, thank you. Absolutely. Benny.

DR. GALLAWAY: My questions have been addressed. Thank you.

CHAIRMAN NANCE: Thank you, sir. Okay, John. We have it on the

screen here. For those on cellphones, you're going to be in trouble, but here it is.

MR. RINDONE: If it's useful, Mr. Chair, I can read the pertinent part, which is just the top couple sentences, and so the Science Center had presented revised options for projected yields from the Great-Red-Snapper-Count-informed interim analysis, using a point estimate of eighty-five million age-two-plus red snapper and revising the amount of the uncharacterized bottom included in the all-structure-plus subset to 13 percent, which was estimated from the random forest model, and 22 percent, which was estimated from the Gardner analysis.

You guys discussed possible methods for determining the OFL and the ABC and what methods could be considered for those catch levels, and, given the uncertainty about the data at the time that it was used for the Great-Red-Snapper-Count-informed interim analysis, you guys were uncertain about the probability of overfishing in reality.

Mr. Smith added, and this is Matt Smith from the Science Center, had added that, presuming the assumptions made are valid under the scenarios provided, which, again, is saying a lot there, and there's a lot that is being held constant, the projected harvest levels should be sustainable in the near-term. To that point, we have talked extensively about our SEDAR schedule and when we should expect revised catch advice to be produced from the SEDAR 74 process.

You guys made some subsequent recommendations that ultimately translated into the OFL and ABC advice that the council used in making, or in generating, the framework action that's been transmitted to the agency.

CHAIRMAN NANCE: Ryan, thank you. That first number there is we need to decide upon the point estimate, the total snapper count, and I'm sure the two-plus is just part of that, but the totals that we're seeing, and which one we would like to use. Let's have a discussion on that first point, which is the total population for snapper. Which one are we recommending that the Center use? Roy.

DR. CRABTREE: Right now, we have two numbers that I have heard of ninety-two million, which I think is in most of the documentation we have, but Will mentioned a ninety-seven-million-pound number, and it's not totally -- It's not clear to what the difference for those two numbers are, and so can someone explain that to me?

CHAIRMAN NANCE: Will, would you -- I'm sure that Will would be the best one, and would you go ahead for those two numbers, please?

DR. PATTERSON: Yes. Thanks, Jim. Throughout the process of the final report, the revised report responding to the CIE and the SSC comments and concerns, and then the addendum that Greg Stunz went over earlier today, the random-forest-derived estimate is what the Great Red Snapper Count official estimate has been, and so that number has changed from 110 to 118 to ninety-seven million age-two-plus red snapper.

The ninety-two million came from Lynne Stokes' analysis, and I am not sure how that got picked up as sort of the official number, or where that came from, but ninety-seven is the actual number that is derived from the analysis that Rob did based on the random forest calculation.

CHAIRMAN NANCE: Will, just for clarification, the two numbers we're talking about then is ninety-seven million, which is from the random forest model, and the ninety-two million from the Stokes' analysis.

DR. PATTERSON: Right, and so the Stokes' analysis, in every report, and the addendum, there has been the random-forest-based estimate and then Lynn Stokes with her own stratification, post-stratification, of the data to produce an independent estimate of the random forest, using the same data, and so those numbers have always been slightly different. Sometimes Stokes is a little bit higher, and sometimes a little bit lower, but the ninety-seven is actually the estimate that comes from the random forest model.

As far as the SSC weighing-in on which is most appropriate, or what to use going forward, I think we've talked about this process, with Katie's earlier presentation today, and then a couple of subsequent presentations about data, of the group from Florida -- Rob and I from the Florida component of the snapper count study, and FWC folks, with Ted kind of leading that effort, and then Katie and her group at the Science Center, working together to come up with a potential secondary, or additional, post-stratification of the West Florida Shelf, to produce yet another estimate.

I mentioned that Rob Ahrens had completed the analysis, where he divided the shallowest stratum now into ten to twenty and twenty to forty, but we haven't met as a group to go over what we think is the best path forward, and maybe it's ten to twenty-five, and maybe it's ten to thirty, and I don't know. Rob did that as a first cut, just to kind of see if he would be able to do it, based on sample sizes, because, as you start to move that shallowest

stratum, you could run into issues with sample size, because it -- Depending on how many samples were placed in a given region, due to the original stratification.

He was able to produce that estimate for ten to twenty, and then twenty to forty, dividing the shallowest stratum currently, but we haven't really met to say that we think this is probably the best approach, and so that number is going to change, but we just don't know how it's going to change at this point.

CHAIRMAN NANCE: That was on the random forest model, correct?

DR. PATTERSON: Right, and I should just add that the red snapper count estimate is ninety-seven million, and that's finished, and that's not going to change.

DR. CRABTREE: Jim, if I can just follow-up then.

CHAIRMAN NANCE: Okay, Roy.

DR. CRABTREE: So it seems to me that our starting point right now is the ninety-seven million fish, understanding that that may be adjusted pending the outcome of the post-stratification analysis and further review of the Louisiana numbers, but it does seem to me that, right now --

CHAIRMAN NANCE: Yes, I agree with that, yes.

DR. CRABTREE: That's where we are.

CHAIRMAN NANCE: Yes.

DR. CRABTREE: So I guess the question is are there other views of that, or can we agree that that is the starting point where we are, and we're not making a commitment of what we're going to do in the end with this, but we're giving the guidance to the Center.

CHAIRMAN NANCE: Okay. Let's go ahead and -- But, right now, I think that, for me, is where we're at for the total red snapper, is we're using the ninety-seven million snapper value. John, please.

DR. FROESCHKE: I just wanted to remind everyone, and we're putting it up on the screen, when we did this in March, the eighty-five million that I quoted there, that was based on, I am presuming, the 110, and then it's minus two standard deviations, and so that's how we got to the eighty-five million, and so, if we wanted to do something similar off the ninety-seven, I guess we would have to

get that calculation.

CHAIRMAN NANCE: Let me ask you this, and maybe I was thinking incorrectly, but I thought the ninety-seven was total biomass, where the eighty-five was two-plus-years old.

DR. FROESCHKE: No, and, as a follow-up, the whole Great Red Snapper Count was based on age-two-plus.

CHAIRMAN NANCE: Okay. Thank you for that clarification. Okay. Paul.

DR. MICKLE: For sake of focused discussions, I sent a motion in, and can you pull that up, please? **All right, and so I think I purposely messed up the second-half, and there's a reason for it, and maybe it will reveal itself, or I will just reveal it later, but my motion, if seconded, is the SSC recommends the Southeast Fisheries Science Center use the 118 and the 96.7 million fish estimates of absolute abundance for management advice, with consideration given to the proportion of the unclassified bottom thought to be vulnerable to fishing pressure, post-stratification of Florida absolute abundance data by depth strata and trends observed in other fishery-dependent surveys.** That's the motion. It needs a little bit of crafting, potentially.

CHAIRMAN NANCE: Okay. Do we have a second on that motion?

DR. MICKLE: If seconded, I will go on.

CHAIRMAN NANCE: No second?

DR. TOLAN: I will second it for discussion, Mr. Chairman.

CHAIRMAN NANCE: Thank you, Jim. Go ahead, Paul.

DR. MICKLE: Sure, and so understanding that the 118 was the estimate done after the randomized forest was removed and the Florida side, and the 96.7 was the adjustment from the reviewers in there, and so, logistically, moving forward, from I think it was Katie that said it, and so coming up with yield projections using on-the-fly -- Most likely the Fisheries Science Center could potentially accomplish this in April, during the council meeting, and provide that advice, as well as the number --

Even thinking about it and treating them separately, as I am trying to do here, of the different surveys, and the LGL studies have come in with, most guaranteeing, falling within those two numbers there, and I think it accommodates everyone's opinions of treating

these separately, which we should, while also accounting for logistics and timeline and management needs at this point. Thank you.

CHAIRMAN NANCE: Thank you. Steven.

DR. SAUL: Thank you, Mr. Chair, and, to this point, I agree in part with this motion, and I think the -- I think we as an SSC body should more -- I guess, backing up a step, I share some of Doug Gregory's concerns about sort of using these values to set the OFL and the ABC, given that typically this isn't done.

MR. RINDONE: Dr. Saul, is it possible for you to move a little closer to your microphone? You sound a little like Charlie Brown's older family member.

DR. SAUL: Sorry, and I was just saying that I echo some of Doug Gregory's concerns regarding kind of how we typically set the OFL and ABC values and such from a stock assessment format, but it seems like that we'll be moving forward, regardless, using the Great Red Snapper numbers, at least for this year, prior to kind of integration with the SEDAR process.

Given that, I think, as an SSC, it's important to -- So this motion is super useful, but I think that we should much more heavily consider this ninety-two, or 96.7, number, this more recent number, just given that it also includes the peer-reviewed -- The updates from the peer reviewers to the analyses, and I think that that -- Some of those points that the peer reviewers made are really critical toward getting a better estimate. Then these spatial analyses are super useful, and so thanks, John and Mandy, for that, and so thank you.

CHAIRMAN NANCE: Steve, thank you so much. Roy.

DR. CRABTREE: Paul, my problem with the motion, and I don't think I could support it at this point, is it seems to me that we have moved beyond the 118 million fish estimate, and I think where we are now is that the base number is the ninety-seven million, or maybe it's 96.7, and I really think that's the one we ought to focus on now.

Then the statement about consideration given to the proportion of unclassified bottom, it seems to me that the next thing we ought to talk about is guidance to the Center on what we believe the proportion of unclassified bottom vulnerable to fishing is and what options we want to see there, and so I think we need to get more specific guidance on that, rather than having a general

statement about it in the motion, but it does seem that, at this point, we're working from the ninety-seven million number, as modified by post-stratification and pending decisions on Louisiana.

CHAIRMAN NANCE: Thank you, Roy. Jim.

DR. TOLAN: Thank you, Mr. Chairman. Dr. Crabtree just touched on what I was going to bring up, and it was kind of the wide open part of the motion about consideration to the unclassified bottom, because, to me, that is the most -- It's the largest area of uncertainty in the Great Red Snapper Count, and so the motion, the way it's written now, is sort of wide open for that, but Dr. Crabtree touched on it. Thank you.

CHAIRMAN NANCE: Thank you. Trevor.

MR. MONCRIEF: Thanks. I am kind of following along the same thing, and I was wondering, and, I mean, it seems like the experts in the room that have been associated with this the longest, and it seems like ninety-seven million is the estimate, and, Paul, I was wondering if you would be willing to make a friendly amendment to remove the "118 and" out of the motion and just use the ninety-seven million and move forward from that.

CHAIRMAN NANCE: Paul.

MR. RINDONE: He is stewing.

CHAIRMAN NANCE: Okay.

DR. MICKLE: I'm okay with how it is, and I would recommend a substitute motion. Thank you.

CHAIRMAN NANCE: Okay. Do we have a substitute motion? Would somebody like to make a substitute motion? Roy, it seemed like you had a pretty good one.

DR. CRABTREE: Okay. **I will offer a substitute motion that the SSC recommends the Southeast Fisheries Science Center use the -- I am assuming that the 96.7 is the number that we're working off of, and so that the Southeast Fisheries Science Center use the 96.7 million fish estimate of absolute abundance for interim analysis, to be considered at the March meeting.**

CHAIRMAN NANCE: Then everything else removed, and is that correct?

DR. CRABTREE: I think so, because I think we need to come back to

the others and then some more specific guidance as to what we want to see, and I think the record is pretty clear that we may come in and modify that 96.7 to a lower number, and I assume it would only be a lower number, and certainly the Louisiana number is lower, and I think any post-stratified Florida number would be likely lower.

CHAIRMAN NANCE: Okay. Do we have a second for the substitute motion?

DR. SAUL: I will second it.

CHAIRMAN NANCE: Thank you so much, Steve. Okay. We have a substitute motion that the SSC recommends the Southeast Fisheries Science Center use the 96.7 million fish estimate of absolute abundance for interim analysis, to be considered at the March 2022 meeting. Any --

DR. CRABTREE: If I could, Jim, just on the motion, now that it has a second, I don't see this either as locking us into anything, and we still have a lot of issues. For example, how do we deal with the overall uncertainty involved in this estimate, and how do we deal with tying this into the rebuilding plan, and so there is still a lot of other questions that we would have to deal with at the March meeting, before we decide whether we're going to go forward with catch advice from it, but I do think we ought to go ahead and give the Center the guidance they need to bring us the analyses that we want to see, so that, if we do decide that we have sufficient information to make a catch level recommendation, this is what we're going to do, but I am sensitive to the concerns that a couple of members have made about the process and how we're getting there and the uncertainties of all this, and we're going to have to deal with those, but I think the immediate task is to give the Center the guidance they need to produce these analyses.

CHAIRMAN NANCE: Thank you. I agree with that. Ryan.

MR. RINDONE: Thank you, Mr. Chair, and, just to Dr. Crabtree's point about the rebuilding plan, any projections that are generated -- Well, I mean, in this case, there really isn't a -- It's a single point estimate of what catch is going to be, based on that catch analysis, but all of that is geared toward continuing on the rebuilding plan of the stock being able to rebuild by 2032, and so the rebuilding plan remains unchanged throughout all of this, and, as stated before, we need like a full stock assessment in order to be able to conclude that the rebuilding plan has or has not been satisfied.

DR. CRABTREE: I understand that, and I'm referring more to the rationale of why we think this level of catch recommendation is consistent with what's in the rebuilding plan and the stock continuing to rebuild, and we're going to have to do the best we can on that, because that's a rationale the council is going to need, and the Fisheries Service will need, to put this in place, and I think we need to give them our best scientific judgment on it.

CHAIRMAN NANCE: Thank you. Will.

DR. PATTERSON: I think, for this motion, you probably need something in there about age-two-plus red snapper, Gulf of Mexico red snapper, and also that the interim analyses are to estimate OFL and ABC.

DR. CRABTREE: I am fine with that, Will, if you want to wordsmith another sentence for it.

DR. PATTERSON: Is it the Center?

DR. CRABTREE: Are we still working, Jim, or are we stopped?

CHAIRMAN NANCE: Well, I'm not sure. Is the Center on? I mean, is the council on?

MS. ROY: We are on. We had a temporary blip. Thank you.

CHAIRMAN NANCE: Okay. Perfect.

DR. CRABTREE: Okay, and so, coming back to Will's comment, Jim, it was that we should clarify that the 96.7 million pounds refers to age-two-plus fish.

CHAIRMAN NANCE: Yes.

DR. CRABTREE: Then there was a second part to his comment that I can't recall.

CHAIRMAN NANCE: I think it would be used for -- Used for catch advice, OFL and ABC.

DR. CRABTREE: For OFL and ABC.

CHAIRMAN NANCE: Yes. So let's go ahead and -- Roy, would you --

DR. CRABTREE: So let's add a sentence saying the 96.7 million -- Well, we've got the age-two, and someone just added it in, and so

that seems good enough, and I don't know, and so you can back up the 96.7, and we've got that covered. Do we need to say that these analyses would be used to revise OFL?

CHAIRMAN NANCE: Yes, I think so. I think, maybe after "meeting", and don't start a new sentence, but put a comma after "meeting".

DR. CRABTREE: To enable the SSC to consider new management advice for OFL and ABC.

CHAIRMAN NANCE: Yes. I think that's great. Okay. Will, does that satisfy it? Steve, from the second, are you okay with that change?

DR. SAUL: Yes, and that's good for me.

CHAIRMAN NANCE: Thank you, sir.

DR. SAUL: Do we need to just add that it's red snapper?

CHAIRMAN NANCE: Yes. Thank you. **Just put "red snapper".** Let's see. Recommends the use of 96.7 million age-two red snapper fish, or individuals, or -- Let me go ahead and --

MR. RINDONE: Mr. Chair, I might recommend the survey from which all this is coming, and so perhaps 96.7 million age-two-plus red snapper from the GRSC estimate.

CHAIRMAN NANCE: Thank you. Okay.

DR. CRABTREE: That looks okay.

CHAIRMAN NANCE: Any further discussion? **Any opposition to this motion? Let me read it. The SSC recommends the Southeast Fisheries Science Center use the 96.7 million age-two-plus red snapper from the Great Red Snapper Count estimate of absolute abundance for interim analyses, to be conducted at the March 2022 meeting, to enable the SSC to consider new management advice for OFL and ABC.**

MR. RINDONE: Mr. Chair, you have five hands up, or six hands.

CHAIRMAN NANCE: Okay. Where are they at? I can't see them.

MR. RINDONE: So starting with Will Patterson.

CHAIRMAN NANCE: Okay. Will.

DR. PATTERSON: My hand is down. Thanks.

CHAIRMAN NANCE: Thank you, Will. Luiz.

DR. BARBIERI: Thank you, Mr. Chairman. Roy, my problem with this motion is it really doesn't provide the Center with any parameters for how to account for uncertainty in going from OFL to ABC, right, and so the Center will use, I will assume, use the same interim analysis approach that they used back in March to generate some figures, but I wonder how they are going to be able to generate an ABC without having some idea of what the uncertainty -- Since this is something that we usually do ourselves, and so do you see my point there?

DR. CRABTREE: Yes, and, to that point, Jim, we have a lot more to do than this one motion, and I am just trying to get us started.

CHAIRMAN NANCE: Yes, absolutely.

DR. CRABTREE: I think then we need motions regarding the percent of the uncharacterized bottom that is vulnerable and give some direction to the Center on that, and then there's certainly a huge issue with respect to how do we derive an ABC from the OFL and how do we adequately account for the uncertainty, and I think we need a lot of guidance from the Center as to different ways to look at that, but those are real issues, but I am trying to take this piece-by-piece, Luiz, rather than all of it at once.

CHAIRMAN NANCE: Go ahead, Luiz.

DR. BARBIERI: I was just saying that helps a lot, Jim, because then we understand that this is not the end, right, of how this process is going to move forward, and there are additional pieces that are going to be added to this. Thank you.

CHAIRMAN NANCE: I am also looking at this as the initial motion, to get us on the path where we can provide -- Right now, we're providing what we would like to see as the total, and then we need to provide other pieces, which will provide the Center with the ability to have here's what we want for uncharacterized bottom and those types of things, and so we're going to provide those in other motions, I hope. Will.

DR. PATTERSON: My hand is down.

CHAIRMAN NANCE: Thank you, sir. John.

MR. MARESKA: When Roy was trying to make this substitute motion,

he was kind of questioning the value of where it was coming from, and so I guess it's a question back to Will, and so, in the Document 13a, on page 6, Table 1, I believe those are the numbers, and I see the 96,677,000, and maybe we just need to pull that table up, so that everybody realizes where these numbers are coming from, and it looks like the numbers for Alabama and Mississippi, the total numbers, changed as well, a little bit, with the modifications that were requested earlier. That's just a thought. I don't know if anybody wants to see those numbers or not.

CHAIRMAN NANCE: I wonder if we just, John, put in -- Ryan, you can tell me if I'm way off-base here, but just from the Great Red Snapper Count estimate of total abundance for the interim analysis, and then maybe, in parentheses, what table that's from, and so there's no question about where these numbers are coming from.

DR. BARBIERI: Mr. Chairman, if I may, just to that point, because this has to do, just like John just pointed out, it has to do with a question that I had earlier that I don't believe was addressed, which was, was there a change in the Louisiana number from the Great Red Snapper Count, given reviewer recommendations, or no? It looks like all the other numbers basically were adjusted somehow, and so I was just wondering if the same was true for the Louisiana number.

CHAIRMAN NANCE: Will, could you speak to that point, or if somebody else from the group --

DR. PATTERSON: I am trying to find the document that was -- I'm not sure that it was ever sent to the SSC, which was the revised estimates based on SSC and CIE input, which is where the 118 came from, and I don't remember that coming through the SSC.

CHAIRMAN NANCE: This table that we have right here in front of us?

DR. PATTERSON: No, and this is the addendum to that final, final report.

CHAIRMAN NANCE: But this table right here is where the 96.7 million pounds is coming from, correct?

DR. PATTERSON: Yes, and so the 118 was produced in a follow-up -- So we had the draft report that was discussed last spring, where the 110 million age-two-plus red snapper estimate was reported, and then a series of different comments and concerns from CIE reviewers and the SSC were incorporated into the estimation process, and that is detailed in that follow-up report, which is

the final report for the study.

Once that was released, there was concern about the 118 number, and so we examined that and said, you know, it's actually incorrect to use anything but the random forest stratification to produce the estimate, and so that was re-estimated, and so the difference between the 110 original estimate and the 96.7 in the addendum estimate is based on the other corrections beyond the stratification question, and so that's the net result when you go back to the random forest stratification that was the original model used to produce the estimate of 110 million.

I am trying to pull up the report now, which came out later in the summer of 2021, to pull out the table to address Luiz's question about how did the Louisiana numbers change between those.

MR. RINDONE: Mr. Chair, I've got this, if you like.

CHAIRMAN NANCE: Okay. Yes. Ryan, please.

MR. RINDONE: Will, et al., you are looking in Item 12a, which is the Great Red Snapper Count Final Project Report submitted to NOAA Sea Grant in June of 2021. On PDF page 87, it's Table 5, and that contains that 118 million fish estimate, and so, if you compare that to Table 1 in 13a, and, Bernie, I don't know if it's possible for you to split those windows out, so that we can see that difference there, and we're just looking at the total number for Louisiana.

For the 118 estimate, it's about 17.4 million fish, and then, for -- It looks unchanged for the 96.7 million fish estimate, and this is just based on the total, and it looks like the total number and the CV and the standard error are all unchanged between the two. Luiz, I think that answers your question.

CHAIRMAN NANCE: Yes.

DR. BARBIERI: Yes, it does. Thank you, Ryan. Yes.

CHAIRMAN NANCE: Ryan, thanks for pulling that up, and so it looks like they are unchanged, and Florida is where the change occurred. Okay. Let's go ahead and, David, please.

DR. CHAGARIS: Thank you, and so, I mean, I understand the practical nature of this motion and for us to get through the charge that we have before us, and I suppose, if we had to pick a number, that would be as good as any to start, but I just want to express sort of my frustration with this process and the direction

that it's going in, some of what I think Doug Gregory was saying a while back about what are we even calling this.

We have this series of decisions to make, and then we put it into this interim analysis, and I guess my question would be are we going to get another look and be able to comment on the interim analysis again, because, as I was looking through the materials, there is some questions that I have about how that's done now that maybe I didn't catch in March, when it was presented, and I think it was March, but it's like, within the interim analysis, we're borrowing rates from the past stock assessment and then trying to scale things up, and, today, we saw where we're using the numbers, but we aren't comfortable with using the maps from the Great Red Snapper Count, and so there's -- I am trying to reconcile all these issues and the direction that we're headed right now.

I am just wondering if there's going to be more discussion, or are we making these decisions that we're kind of locked into this interim analysis approach?

CHAIRMAN NANCE: Well, I think, with the timeframe we're dealing with, the interim analysis is one methodology that the Center can provide by March. Harry.

MR. BLANCHET: Thank you, Mr. Chair. My initial comment was in reference to the comment that Dr. Froeschke, a point that Dr. Froeschke had done earlier, and how we had gotten to the eighty-five million off of the 110, at the time, which was basically two CVs off of the point estimate, and I don't know, and do we want to consider a similar process here, or do we want to use the point estimate of 96.7 million fish? I think, whichever direction we go, we need to provide the council with at least, or maybe Ryan with at least, some rationale for why we would or would not change direction at this point.

Also, if you wanted to, instead of saying "interim analysis", you could use some other synonym of "interim", and I don't know what that might be, and they all have -- Every word you have carries baggage, but something like a provisional or some other synonym.

MR. RINDONE: Mr. Chair?

CHAIRMAN NANCE: Yes, Ryan, please.

MR. RINDONE: To Harry's point, that was kind of why I tried to make a habit of calling it a catch analysis, because of its difference to what you guys have been seeing recently as an interim analysis for other species, and there are some difference between

what is being done, or what was done, for red snapper to inform catch advice in March and April versus what is typically done for other species, like red grouper. There are some differences there, and that was why we were calling this a catch analysis, more so than an interim analysis, and I know that just sounds, to some, like new paint and new shrubs, but there are some strong differences.

CHAIRMAN NANCE: I think maybe that -- Roy, would you be amenable to that change?

DR. CRABTREE: **Yes, that's fine.** I only called it an interim analysis because that's what it's called in the briefing book.

CHAIRMAN NANCE: Okay. Steve, would you be okay with that change?

DR. SAUL: Yes.

CHAIRMAN NANCE: Okay. **Let's go ahead and just put "catch" there.** Thank you, Harry. Steve, you're next.

DR. SAUL: Thanks, Mr. Chair. I guess my question was for someone in the Center, and I guess Katie, perhaps, but when -- I guess I was curious, and, given the time of day, it may be better to punt this to tomorrow, or even in our March meeting, when we review the results of this, but I would be curious to know if the interim analysis will do the projections check, and I guess, one, is it just sort of computing a stand-alone ABC and OFL value, or are there -- I assume there are projections associated, and, if so, are they checking that the stock is rebuilding, which I assume they are, and, given that they would, what is it checking against?

I guess the nature of my question is specifically whether the 96.7 million value is what is going to become the new -- How do I say it? The new kind of target -- I guess I'm just wondering how -- Given this new value, how the other kind of values will be recalibrated, in terms of like MSY and other benchmarks, given that we're assuming that this is a current abundance now, and I don't know if that makes sense, and, again, if that's too loaded, given that there's only ten minutes left in the day, then that can be punted to another time.

CHAIRMAN NANCE: Probably, in our discussions tomorrow, Steven, and we can work on this motion right here, and get it voted on, and then we'll discuss that tomorrow. Ryan.

MR. RINDONE: Mr. Chair, you said what I was going to say.

CHAIRMAN NANCE: Okay. Thank you. Mike.

DR. ALLEN: Thank you, Mr. Chair. I just wanted to offer a little bit of encouragement about this process. Rather than take the original numbers of 118, I think this process has worked how it was supposed to work, or how it should work, which is that those estimates were -- Peer review happened, and substantial revisions were made, and I actually felt good about the fact that, even though they did a pretty major re-stratification of some of the data, it didn't change the estimate that much, and the ninety-seven million is within the confidence intervals of the original 118 million, as was mentioned earlier. I am just speaking in favor of this motion, and I think it shows that the process is working.

CHAIRMAN NANCE: Thank you. Will.

DR. PATTERSON: I just wanted to clarify a point that was made earlier, when Ryan pulled up the Table 5 from the Document 12a, and that's titled the final report, and this is the final report that was submitted to Sea Grant.

However, this is revised from what was submitted to the SSC in March of 2021, and so Tabs B, C, D, and E were -- Those all were based on the earlier draft report that was submitted to the SSC in March of 2021, in which the estimate was 110 million and not 118 million, age-two-plus red snapper. That is found in that document, and the same table is found on page 82, and it's still Table 5, but, in that original draft final report that we submitted for CIE review and SSC review.

To Luiz's earlier question about how the estimates changed for Texas, Louisiana, Alabama, and Mississippi, there is no difference between the final report of 118 million and this addendum report, where the estimate is 96.7 million. However, if you go all the way back to the March 2021 draft final report, you will see the changes in estimates for those other regions, and it wasn't just Florida that changed, and those changes were based upon CIE and SSC comments.

CHAIRMAN NANCE: Yes. Perfect. Thank you, Will. I am going to go ahead and read the motion. Paul.

DR. MICKLE: Thank you. I just wanted to tell the group that I'm glad that it ended up this way. I like the motion, and I think Roy made a really good point, after he made the motion, that it doesn't lock us into anything, with all of our, I guess, different opinions about the process of keeping things different, or together, and waiting on something, and the frustrations with the

logistics of it, and I am in support of this substitute motion.

Then, to close, and just to clarify, if you're a PI on this, what are our SOPPs on that, and I just can't remember, and we have discussed it before.

CHAIRMAN NANCE: They can vote on this. They can't vote on whether it's the best available science. Once that vote is taken, then they're able to comment and vote.

DR. MICKLE: Thank you for the clarification. That's all.

CHAIRMAN NANCE: You're very welcome. Let's go ahead and take a vote on this motion, and we'll probably do, Bernie, a roll call vote, I guess. I'm going to read the motion, and then we can go ahead and call for votes.

The SSC recommends that the Southeast Fisheries Science Center use the 96.7 million age-two-plus red snapper from the Great Red Snapper Count estimate of absolute abundance for catch analyses, to be considered at the March 2022 meeting, to enable the SSC to consider new management advice for OFL and ABC. Let's go ahead and call for a vote on that.

MR. ROY: Lee Anderson. I'm going to come back to you. Luiz Barbieri.

DR. BARBIERI: Yes.

MR. ROY: Harry Blanchet.

MR. BLANCHET: Yes.

MR. ROY: David Chagaris.

DR. CHAGARIS: Yes.

MR. ROY: Roy Crabtree.

DR. CRABTREE: Yes.

MR. ROY: Benny Gallaway.

DR. GALLAWAY: Yes.

MR. ROY: Doug Gregory.

MR. GREGORY: No.

MR. ROY: David Griffith.

DR. GRIFFITH: Yes.

MR. ROY: Paul Mickle.

DR. MICKLE: Yes.

MR. ROY: Trevor Moncrief.

MR. MONCRIEF: Yes.

MR. ROY: Jim Nance.

CHAIRMAN NANCE: Yes.

MR. ROY: Will Patterson.

DR. PATTERSON: Abstain.

MR. ROY: Sean Powers. Sean is not on. Steven Scyphers.

DR. SCYPHERS: Yes.

MR. ROY: Jim Tolan.

DR. TOLAN: No.

MR. ROY: Rich Woodward.

DR. WOODWARD: Abstain.

MR. ROY: Jason Adriance.

MR. ADRIANCE: Yes.

MR. ROY: Mike Allen.

DR. ALLEN: Yes.

MR. ROY: John Mareska.

MR. MARESKA: Yes.

MR. ROY: Luke Fairbanks.

DR. FAIRBANKS: Yes.

MR. ROY: Cynthia-Grace McCaskey.

DR. GRACE-MCCASKEY: Yes.

MR. ROY: Thank you. Mandy Karnauskas.

DR. KARNAUSKAS: Yes.

MR. ROY: Josh Kilborn.

DR. KILBORN: No.

MR. ROY: Steven Saul.

DR. SAUL: Yes.

MR. ROY: Lee Anderson. Lee, it looks like you're unmuted, but we're unable to hear you. He votes yes. Okay. Thank you. Jack Isaacs.

DR. ISAACS: Yes.

CHAIRMAN NANCE: It looks like the motion carried. What I would like to do now is we're going to have public comment, but, for each of the SSC members, be thinking about the other motions that need to be made tomorrow morning, so that we can move forward with this and give the Center our best scientific recommendations to move forward on this catch analysis. I appreciate your attendance today and all the discussions we've had, and it was greatly appreciated. With that, we'll go ahead and open it up for public comment. Steve Buckner, please.

PUBLIC COMMENT

MR. STEVE BUCKNER: I just feel like I got skipped on voting on the amendment. I'm the last vote. I am part of the SSC AP.

CHAIRMAN NANCE: Okay. I'm sorry that happened.

MR. BUCKNER: I would have voted in favor of it, and so it's a yes for me, if you're wanting to --

EXECUTIVE DIRECTOR SIMMONS: Mr. Buckner, I think you're on the Reef Fish AP.

MR. BUCKNER: I am, and so this is a different meeting group altogether?

EXECUTIVE DIRECTOR SIMMONS: Yes, sir.

MR. BUCKNER: Okay. I apologize for my misunderstanding.

CHAIRMAN NANCE: Mr. Buckner, thank you, and I appreciate your willingness to vote though. Would you like to make anything for a public comment, sir?

MR. BUCKNER: No, sir. I'm good on that. Thank you.

CHAIRMAN NANCE: Okay. Thank you. We appreciate your attendance. Do we have any others for public comment? We will give it a minute here. Okay. It looks like we don't have any public comment at this time, and we appreciate all those in attendance today, and we look forward to talking tomorrow, and we'll be on at 9:00 a.m., Eastern Standard Time, and you guys all have a good night. Thank you.

(Whereupon, the meeting recessed on January 12, 2022.)

- - -

January 13, 2022

THURSDAY MORNING SESSION

- - -

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 morning, January 13, 2022, and was called to order by Chairman Jim Nance.

SUMMARY DISCUSSION AND POTENTIAL REQUESTS FOR UPDATED SEFSC RED SNAPPER INTERIM ANALYSIS FOR CATCH ADVICE FOR THE MARCH 2022 MEETING (CONTINUED)

CHAIRMAN NANCE: Good morning, everybody. I hope that everyone had a good rest from yesterday, and so, at the end of our meeting yesterday, we had a motion passed, and the substitute motion carried nineteen to three with two abstentions and one absent, by a roll call vote, and so we can see it there, and I will go ahead and read that again.

The SSC recommended that the Southeast Fisheries Science Center use the 96.7 million age-two-plus red snapper from the Great Red

Snapper Count estimate of absolute abundance for catch analyses, to be considered at the March 2022 meeting, to enable the SSC to consider new management advice for OFL and ABC.

That's where we kind of ended yesterday, and we still have some other issues that we need to discuss this morning, to provide input into the Center's analysis, and three of those things -- I will just kind of go over what my thoughts are.

We need to discuss and have some motions on the proportion of uncharacterized bottom that is exploited by the fleets, and so we need to have that discussion, and we need to talk about how to utilize trends that are evident in the National Marine Fisheries' bottom longline and the SEAMAP video, and, when I say SEAMAP video, that's really Pascagoula and Panama City and also Florida's videos that are incorporated into one type of index.

Then the third one is the uncertainties that we want to consider for buffers between OFL and ABC, and so those are just kind of my thoughts for this morning, and we can go ahead and proceed. Any discussion on those, and any thoughts or motions that we would like to present? I am certainly open to those at this time. Roy, please.

DR. CRABTREE: Good morning, Jim, and I think you covered it pretty well. Do we need a motion making it clear that the SSC wants to see the post-stratification analysis for Florida completed and that we want to see the LGL response regarding the Louisiana estimates, and the response to comments and all, at the March meeting?

CHAIRMAN NANCE: Probably it would be wise to do that. Let's go ahead and talk about the first one, Roy. Do you have a motion for that?

DR. CRABTREE: I can make a motion.

CHAIRMAN NANCE: Okay.

DR. CRABTREE: That the SSC requests the Southeast Fisheries Science Center proceed with the post-stratification analysis of the Florida shallow-water zone and present the results at the March meeting.

CHAIRMAN NANCE: Roy, would that be incorporated -- Would that give them time -- I guess my question would be, if they do that analysis, and then present it at the March meeting, would they incorporate that into the -- Would they have already incorporated

that into their catch analyses?

DR. CRABTREE: That would certainly be desirable, if they already completed an analysis that does incorporate that, for us to review.

CHAIRMAN NANCE: Okay. Do we have a second for this motion?

DR. ANDERSON: I will second it.

CHAIRMAN NANCE: Thank you, Lee. Is there discussion on this motion?

DR. CRABTREE: Jim, I believe my understanding is we already have the LGL presentation and all of that that is on the agenda for the next meeting, and so that's set, but I just want to be clear that we are still going to look at that, and we reserve the right to decide what to do with it at that time, and I don't know if we need that in a motion or not.

CHAIRMAN NANCE: Okay. Let's do this motion, and then we can talk about that further. Thank you for that, Roy. Ryan.

MR. RINDONE: Thank you, Mr. Chair. Just a note to you guys that applying a post-stratification analysis to the 96.7 million fish absolute abundance estimate will result in a change to that absolute abundance estimate, and so I guess there's an effect of this motion on the number that was specified in the previous motion, and I'm just calling that to your attention.

DR. CRABTREE: Yes, and, if I could, Mr. Chairman, I understand that that is the situation, Ryan, and I think Will gave us an indication that it produces a somewhat lower estimate, but we won't know until we see it.

CHAIRMAN NANCE: Right now, if we do this, we would ask the Center to do two different scenarios.

MR. RINDONE: So that would -- Maybe putting something like that in there, Mr. Chair and Dr. Crabtree, just so that it's mapped out well and the Center understands what is expected of them and people understand what the SSC is asking for.

DR. CRABTREE: All right. Could I add a little -- Let's see if we can add something. **Present the results at the March meeting, along with a catch analysis that incorporates the analysis, post-stratification analysis, or incorporates the post-stratification results.** How's that?

CHAIRMAN NANCE: Let's see. So this reads: The SSC requests the Southeast Fisheries Science Center proceed with the post-stratification analysis of the Florida shallow-water zone and presents the results at the March meeting, along with a catch analysis that incorporates the post-stratification results. Okay.

MR. RINDONE: Mr. Chair, if I may, for clarity and specification?

CHAIRMAN NANCE: Yes, please.

MR. RINDONE: The SSC requests the Science Center proceed with the post-stratification analysis of the Florida shallow-water zone (ten to forty meters, per the GRSC). There's a shallow-water, mid-water, and deepwater zone, and so per the GRSC, and, Roy, talk over me or in front of me or whatever, if you don't like how I'm trying to just make this more specific, and I'm trying to make sure I keep the intent of what you're trying to do exactly as you have stated it.

DR. CRABTREE: No, that's fine. I appreciate your help, Ryan.

MR. RINDONE: And present the results at the March 2022 SSC meeting, along with a second catch analysis incorporating these post-stratification results.

CHAIRMAN NANCE: Okay. I think that makes it clearer. Lee, any concern with those edits, for your second?

DR. ANDERSON: No, and I'm fine with that, Mr. Chair.

CHAIRMAN NANCE: Thank you so much, Lee. Is there discussion on this motion? Ryan.

MR. RINDONE: I'm all done, Mr. Chair.

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

MR. ADRIANCE: Thank you, Mr. Chair. Just further clarification, and should that be west Florida, or West Florida Shelf?

DR. CRABTREE: To that, Jim?

CHAIRMAN NANCE: Yes, please.

DR. CRABTREE: Clearly my intent is the Gulf coast of Florida, and I'm not talking about the east coast, but I guess I would like to hear from the Science Center, and maybe John Walter is on, as to whether this same post-stratification analysis out to extend

beyond Florida, or should it just be confined to Florida? All I've heard talked about has been Florida, but I would like to hear someone who is more familiar with this -- Their views on whether we need to expand the area.

CHAIRMAN NANCE: Okay. Thanks. John, any comment on that, John or Katie, I guess, from the Center?

DR. WALTER: I will comment. Mainly the two pieces of information that we have used to evaluate this are the depth distribution from our surveys, and it also indicates that the ten-to-twenty-meter depths don't have the same density as twenty to forty meters, and so a similar stratification -- This is Gulf-wide, and a similar stratification might make sense throughout the distribution, and I think that was considered by the smaller group who was evaluating Florida, but we just haven't pursued it yet, and I would like to hear from the experts in the western part of the Gulf on the merits of that, but, from what I have seen, it looks like it might be a similarly valuable exercise. Thanks.

CHAIRMAN NANCE: Thank you, John.

DR. CRABTREE: I guess, Jim, if we could hear some more discussion of that, but I would be willing to modify the motion to say the post-stratification analysis of the Gulf of Mexico shallow-water zone.

CHAIRMAN NANCE: Okay. It looks like we have Harry. Let's go ahead and have discussion on this, and then we can see if we want to change some stuff. Harry, please.

MR. BLANCHET: Jason can go first.

CHAIRMAN NANCE: Jason was talking, and I think, Jason, were you done with --

MR. ADRIANCE: Yes, Mr. Chair. I was done.

CHAIRMAN NANCE: Perfect. I think Jason was talking about the west coast of Florida, and so this is -- Jason can certainly come back and talk about anything else, but, if we move to have this Gulf-wide, that would preclude just having the west coast of Florida in there, from my understanding. Go ahead, Harry.

MR. BLANCHET: I am not the expert on this, and I am just like everybody else and looking at that same set of tables, and, if you look at the number of samples in Florida, for the natural and uncharacterized bottoms, there are 748 samples that were taken.

Texas, I believe, is next, with 140, and Louisiana has eighty-seven, and Alabama and Mississippi have three, and so, to me, I don't know if you're going to have enough samples in any of that area to benefit from this, and, I mean, it doesn't hurt to look, but I just would not hold out a whole lot of hope of getting any better estimate than what you currently have, based on a similar exercise, just because you just don't have that many samples, and I'm sure that some of the PIs could chime-in on that.

CHAIRMAN NANCE: Harry, thank you so much. Benny, please.

DR. GALLAWAY: I was unaware that the sample size was so small. There is a very real shallow-water difference, but I'm sure it will be addressed, to the extent it can be. Thanks.

CHAIRMAN NANCE: John.

DR. FROESCHKE: If I recall, we discussed this some yesterday, and, specifically in Louisiana, that area in the ten to twenty has a lot of hypoxia, at least in parts of the year, and, in Texas, it seems that that area is not targeted by red snapper fishermen very often, and so the exploitation in that area is very low, or zero, and so I'm not sure that this would get us very far down the road, in terms of additional information, but it would require a lot of work, and I don't know if we would be able to get all of that in time for the March meeting.

CHAIRMAN NANCE: Okay. Trevor.

MR. MONCRIEF: I was just going to chime-in that it seemed like, when we came to the Florida side, there was specific evidence that was found and brought up, and stuff that could lead to this determination, and I'm not sure if that same information is available for the various regions, and so kind of like what Harry said.

CHAIRMAN NANCE: Thank you, Trevor. It looks like, from those discussion points, Florida would be the one that we would be requesting the post-stratification analysis for, and not really the rest of the Gulf. Sean Powers, please.

DR. POWERS: I just wanted to get back to the motion for a second, and, Roy, is your intent -- This isn't a decision point, and this is just we want to see what the analysis has in contrast to the other analysis, and so it's just another option?

DR. CRABTREE: Yes, and then we would, at the March meeting, have

to make a decision on which numbers are we going to use, and we would have to decide whether we think the post-stratified numbers are an improvement or not.

DR. POWERS: Okay, and so I would be interested in hearing what John thinks about workload, because, when we've asked to do multiple options, there's been some pushback that the workload is just too much.

DR. CRABTREE: If I could, Jim, I would kind of rely on the Center to tell us if they want to give a shot at doing the entire Gulf, or is that just too much, and I would just go with their guidance on that.

CHAIRMAN NANCE: Okay, and it looks like we have Katie. Katie, please.

DR. SIEGFRIED: Thank you, Mr. Chair. Good morning, everyone. I had some clarifying questions about the motion before the Gulf-wide post-stratification issue was discussed, and just a little bit of background about that, first. When we met as that collaborative group, we did have folks ask, well, why aren't we shining the same light on the other parts of the Gulf, and the reason was, of course, because FWRI and the Science Center had discussed this, and so they kind of brought it us and worked with us, and we both saw the same things in our surveys, and so we didn't use this magnifying glass all across the shallow zone across the Gulf.

Not that that's not merited, and so it was something where we thought, okay, if the SSC thinks that it's warranted, then we will proceed with that, and we certainly can do it, and I don't think it's an -- I don't think it's a huge workload to include the rest of the Gulf in that post-stratification. I guess that's one part.

My other clarifying questions had to do with the order of these motions, kind of what Ryan had brought up, and did you want to finish the Gulf-wide discussion, and then I can ask my clarifying questions, Mr. Chair, or should I go ahead?

CHAIRMAN NANCE: Why don't you go ahead and ask those questions right now, while we're on this topic, for sure, Katie.

DR. SIEGFRIED: Okay, and so perhaps you can correct me if I'm off-base here, but, when I watched you all do the motion yesterday, and it was a specific number, I thought that the discussion clarified the intent that that was a starting value, and it wasn't necessarily that, okay, we need to provide an analysis with this,

and then the next step is to provide it with one post-stratification, and then the next step, and then the next step, and the next step.

I thought that what the nature of that motion was, it was, okay, the SSC thinks that the random forest model design should be included in the analysis and the estimate of total abundance, and that's what I saw as that motion, and perhaps I am wrong, because, otherwise, as each motion is passed, it sets up another set of basically work for Matt and LaTreese to run all of these, and so is there value in doing the first 96.7 million and then the post-stratification in Florida, and then, if the Gulf, then that as well, and then any other modifications, or should it be all of the modifications to that total number to provide the OFL advice? It would be nice to have some -- At least clarify if I misunderstand. Thanks.

CHAIRMAN NANCE: Sure. Ryan.

MR. RINDONE: Thank you, Mr. Chair. Maybe I can clarify on this, and so, when you guys passed that first motion, that was defining the version of the Great Red Snapper Count that you guys were going to move forward with, and you still have other things to discuss as a body, like what sorts of inferences you have seen, or that you might have, from the NMFS bottom longline survey and the SEAMAP video surveys, and, also, the percent utilization of the UCB.

These are all things that kind of build together to create the total framework of what it is that you're going to be asking the Center to do, and so I guess, as we were talking about all of this, what I was envisioning was that it would start with that 96.7 million fish, and you guys would make a decision about the UCB that would be applied to that same analysis, and then now, with having a second analysis that includes a post-stratification for the Florida shallow-water stratum, you would apply that same determination about UCB to that second analysis.

I am certainly understanding of Dr. Siegfried's wariness of this turning into several different catch analyses, which is what we were trying to avoid, and we talked with the council about the exact same things when we were talking about amendment analyses and the matrix of decisions that can result from that, but, right now, I guess I am still envisioning the progression of discussion, at this point, only leading to two catch analyses, one using that 96.7 million fish and one using that value with a post-stratification for that Florida shallow-water stratum applied, and both of them using whatever decision you come to regarding the UCB.

CHAIRMAN NANCE: That is kind of where I was going with that, Ryan, and so we would have the two split, and we would use the 96.7 value with coming up with a proportion of the UCB that is exploited, and we would use that same thing for this second analysis, which would be a number that was created by the post-stratification analysis for, right now, the Florida shallow-water stratum, and so that's kind of how I'm looking at it. Katie, does that give you guidance on that?

DR. SIEGFRIED: Yes, thank you. That's much better than the alternative that I was envisioning, that I think Ryan could see too, and so I appreciate that. As long as that's the way the rest of the SSC thinks it's going, we're good to go.

CHAIRMAN NANCE: Okay, and we will certainly hear if that's the way the rest of them are going, for sure. Thank you. Harry.

MR. BLANCHET: Talking about post-stratification, if you look at that Table 1 on the 13a update, what we have for all other states is an uncharacterized bottom strata. For Florida, we have something called natural and uncharacterized bottom.

How would you go about parsing out natural, as opposed to uncharacterized bottom, in Florida, because, to me, that kind of is two different things, and neither of them is -- It's not well known, and so I don't know if that is the same as dealing with a pure uncharacterized bottom, because we have both the natural, which has relatively high estimates of abundance, and then you're going to have uncharacterized, which might not, and so I don't know if -- I am just struggling with it.

CHAIRMAN NANCE: For the proportion of utilization part, Harry?

MR. BLANCHET: Well, in terms of the stratification and in terms of the proportional utilization, both of it, because it seems that you've got snapper that are on structure of some sort, and so, if we've got that, then that's different than uncharacterized bottom, which contains some little cryptic pieces of substrate here and there, and maybe I am making a mountain out of a molehill.

CHAIRMAN NANCE: Thanks. Thanks for those comments, Harry. Jim.

DR. TOLAN: I think Harry brings up a really good point, and I noticed this yesterday, when we were talking about this table, and, if you look at the CV for all the states, in terms of this uncharacterized bottom, once you get to Florida, then it's combined with the natural, and it's nearly half, and so, again, parsing

that out between the natural bottom and the uncharacterized bottom is very different, in terms of how the sampling is done, because the CVs are dramatically lower in Florida, and so I'm just wondering how that's going to happen. Thank you.

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

MR. RINDONE: I yield to Dr. Patterson.

CHAIRMAN NANCE: Will.

DR. PATTERSON: Thanks, Jim. One thing to keep in mind, as far as Harry's question, is that the stratification wasn't based on habitat. We didn't have sufficient habitat maps in the Gulf to stratify by habitat. Instead, the original random forest stratification was done based on the model prediction of low, median, and high, medium and high, probability of red snapper encounter, and, again, that was this series of ten fishery-dependent and fishery-independent sources of information that were fed into the model that Zach Siders and Rob Ahrens put together for the random forest.

Other regions didn't use that stratification explicitly, and there were some modifications, and there were some pretty significant departures, and so, as far as the question about Florida and why you would have natural and uncharacterized together, it's because, at the outset, it was all uncharacterized, right, and then, when we did surveys, we know that some of those areas actually had relief, and, obviously, we had some information that some parts of the shelf where reefs, well-known reefs, like the Florida Middle Grounds, for example, have been mapped in various ways for decades.

That is why you have that specification in Florida, and then artificial reefs are clearly a distinctive habitat, and they were broken out, and I mentioned yesterday that not many artificial reefs were actually surveyed during this study, because of the data, the estimates, prior to the study, indicated the variance among sites, artificial reef sites, was pretty low, and, again, the sample size had to do as much with, or more so, really, about the estimated variance ahead of time than where red snapper were likely to be or not to be, and so that explains why you have that setup in Florida.

Sean, perhaps, can speak to Alabama and how -- The Western Gulf is quite similar in that respect, and I don't see Greg on the call, but I will just say that's why you see that in Florida.

CHAIRMAN NANCE: Thank you, and that's a very good explanation.

Any other comments or concerns with this motion? Okay. I think that what we're trying to do here is we have the one catch analysis that we talked about yesterday, and this would be a second iteration of that, utilizing the post-stratification analysis. John.

DR. WALTER: Thank you, Mr. Chair, and I guess I want some clarity here on the motion as to proceed with just the Florida -- Just post-stratification of Florida, and there was some discussion about whether the other states would have the data, or it would be useful or not, and is this meaning to intend that we not proceed with the other ones, because they're not specified, or, if we were to proceed, would the SSC also consider that?

I am thinking that there just may be a scientific rationale for proceeding with it, and, if we were to do that, would the SSC say, no, that wasn't what we asked for, because I am not hearing that there is a science rationale to not do that, but I'm hearing that there may be a data, and there may be a workload, but I just want to, as we proceed further with this, get some guidance. Thanks.

CHAIRMAN NANCE: Absolutely. Roy.

DR. CRABTREE: Well, I guess, if it can be done, I would like to see it applied Gulf-wide, if that's not too much of a burden, and I understand there are sample size issues in some areas, and so it may not be possible everywhere, but I regard this as an improvement, if it could be done more broadly, and so I would be happy to change the word "Florida" to "Gulf of Mexico", understanding that our primary priority was to address the Florida issues, but, if it can be done more broadly, that would be desirable. Does that make sense, Jim?

CHAIRMAN NANCE: Yes, and we have Florida. I guess the question is, from the Center's perspective, right now, Florida is what you've been working on, and you haven't involved the rest of the Gulf yet, but is that -- I guess is that a doable thing? Katie.

DR. SIEGFRIED: Yes, it is a doable thing, and I raised my hand because I wanted to say that, if it's shown, during the attempt to post-stratify, that the data are not sufficient, then that would be what we would report to the SSC, and so I think those types of issues we could solve in an attempt to post-stratify, and so it's just sort of a follow-up to John's point that the scientific issue with post-stratification would be solved in the attempt. I did verify that it's not that much more work to attempt to post-stratify the whole Gulf, as opposed to just Florida.

CHAIRMAN NANCE: Okay. Thank you, Katie.

MR. RINDONE: Mr. Chair, you need to see if the seconder agrees with the change.

CHAIRMAN NANCE: I will. Lee, is that okay with you?

DR. ANDERSON: That's fine.

CHAIRMAN NANCE: Thanks, young man. Harry.

MR. BLANCHET: My concern was primarily, with the data issues, that we not be asking for stuff that's not feasible, and I guess my only concern, and it has already been addressed by Katie, is that they just report back -- If data is the limiting issue, that they just report back that that is what limited the analysis to Florida in the final discussion, and I'm fine with that, and I just didn't want to have anybody have any expectations that might not be filled.

CHAIRMAN NANCE: Yes, and I appreciate that, because we were looking at Florida, and that seemed to be a doable thing. I think what this one does is, if possible, we're going to look at the whole Gulf of Mexico, but certainly, if there are data issues, and, from a scientific standpoint, they're not capable of doing that, then we wouldn't, and I think we'll look at what the Center produces at our next meeting, but thanks, Harry. Benny.

DR. GALLAWAY: My thoughts have been expressed by others. Thanks.

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

DR. POWERS: I will comment first on -- I'm not sure how fruitful this will be, because Will is right that each of the areas used a slightly different approach. In Alabama and Mississippi, we did not use the random forest approach. In Louisiana, we wound up not doing it, and I think we originally planned for it, but, because of the problems with sampling there, we didn't do it. Texas, I'm not sure of, and Greg is not on, and we would have to loop back with Jay Rooker and see if they used it, and maybe Will remembers, but I think they might have used a similar approach to what Rob designed for Florida.

I am not sure how fruitful this will be. I mean, each state tried to balance efficiency versus reducing variance, and we were able to do it to different levels, because we had different habitat maps, and so that's just the issue there of whether this will be an efficient use of time, and I don't think it will be, but there

is no harm, if that's the answer.

I am more philosophically worried about departing from what the reviewers reviewed. NMFS has all of the data, and they can analyze it any way they want, with the point estimates and the sample, but, once we start doing a lot of post-hoc analysis, we are really departing from what the reviewers and the whole review team reviewed that supported the estimate, and so I am very concerned, philosophically, about having a different set, a different way to analyze this, than what the review team and the statisticians signed-off on. Those are my two comments.

CHAIRMAN NANCE: Sean, thank you for those. Ryan.

MR. RINDONE: Thank you, Mr. Chair, and so just something that may be of use here. When we draft the terms of reference for the Science Center for developing, and for FWC, for developing stock assessments, we sometimes ask for things that it's questionable as to whether it's even possible to do, given that we don't necessarily know all the data that are available or how they're available.

It may be useful, after the parenthetical there, to add "where possible", and so shallow-water stratum (ten to forty meters, per the GRSC), where possible, and present". That way, if it's not possible, for some reason or another, then we're -- It just makes it a little bit more flexible for the Center to be able to complete this request successfully.

CHAIRMAN NANCE: I think that would be appropriate, for sure. Roy and Lee, any problem with that edit?

DR. CRABTREE: No, that's fine. Clearly, I don't want to ask the Center to do something that can't be done.

MR. RINDONE: Mr. Chair, I have one more bit of information here.

CHAIRMAN NANCE: Just one second. Lee.

DR. ANDERSON: I am fine with it, Mr. Chair.

CHAIRMAN NANCE: Thank you, sir. Okay, Ryan, go ahead.

MR. RINDONE: I texted Dr. Stunz, and I asked him if the random forest approach was used in Texas as well, and he said, no, that it was only in Florida.

CHAIRMAN NANCE: Okay. Thank you. Katie.

DR. SIEGFRIED: Thank you, Mr. Chair. I appreciate all of the conversation about this, and I provided feedback, when asked for, as far as what the workload was and what was possible and what we would report back, but I did want to just reiterate the spirit of the collaboration, and it was very important that it was done all together, and that it wasn't the Science Center going in and adjusting things without the agreement of the Great Red Snapper Count PIs and the state folks, and so it's important to us, as the Center, that this not embarked upon without agreement.

We certainly don't want to be driving this, and we couldn't do this without Rob and Will and others who are actually doing analyses for us, as part of the Great Red Snapper Count PI group, and so I just wanted to state that, to make sure that was understood.

CHAIRMAN NANCE: I appreciate you saying that, but we understand. From the presentation yesterday, it seemed a very cooperative scientific effort that you were doing this. I am going to read the motion, and we can take a vote on it.

The motion is the SSC requests that the Southeast Fisheries Science Center proceed with a post-stratification analysis of the Gulf of Mexico shallow-water stratum (ten through forty meters, per the Great Red Snapper Count), where possible, and present the results at the March 2022 SSC meeting along with a second catch analysis incorporating these post-stratification results. I will ask this. **Is there any opposition to this motion?**

DR. PATTERSON: Jim, I don't oppose it, but I abstain from voting.

CHAIRMAN NANCE: Okay, Will. Thanks.

DR. POWERS: Jim, same thing. I abstain, and I can't be objective about this one.

CHAIRMAN NANCE: Okay.

MR. GREGORY: I abstain.

CHAIRMAN NANCE: I guess the best way is should we do a roll call then and vote on it again?

MR. RINDONE: It sounds like it.

CHAIRMAN NANCE: Okay. Let's go ahead and do that, please.

MS. ROY: Jim Tolan.

DR. TOLAN: Having voted no for the previous motion, I am going to abstain from this one.

MS. ROY: Sean Powers. I believe you said abstain.

DR. POWERS: Abstain.

MS. ROY: Trevor Moncrief.

MR. MONCRIEF: A quick clarification before I vote. We will be seeing all this information again and vote on which one we would select, based on the findings, right?

CHAIRMAN NANCE: That is correct.

MR. MONCRIEF: Then I will vote yes.

MS. ROY: Doug Gregory. I believe you said abstain.

MR. GREGORY: Yes, I abstain.

MS. ROY: Thank you. Dave Chagaris.

DR. CHAGARIS: Yes.

MS. ROY: Lee Anderson.

DR. ANDERSON: Yes.

MS. ROY: John Mareska.

MR. MARESKA: Yes.

MS. ROY: Jack Isaacs.

DR. ISAACS: Yes.

MS. ROY: Steven Saul.

DR. SAUL: Yes.

MS. ROY: Richard Woodward.

DR. WOODWARD: Yes.

MS. ROY: Thank you. Will Patterson.

DR. PATTERSON: I abstain.

MS. ROY: Thank you. Paul Mickle.

DR. MICKLE: Yes.

MS. ROY: Benny Gallaway.

DR. GALLAWAY: Yes.

MS. ROY: Harry Blanchet.

MR. BLANCHET: Yes.

MS. ROY: Jason Adriance.

MR. ADRIANCE: Yes.

MS. ROY: Luke Fairbanks.

DR. FAIRBANKS: Yes.

MS. ROY: Mandy Karnauskas.

DR. KARNAUSKAS: Yes.

MS. ROY: Steven Scyphers.

DR. SCYPHERS: Yes.

MS. ROY: Jim Nance.

CHAIRMAN NANCE: Yes.

MS. ROY: David Griffith.

DR. GRIFFITH: Yes.

MS. ROY: Roy Crabtree.

DR. CRABTREE: Yes.

MS. ROY: Luiz Barbieri.

DR. BARBIERI: Yes.

MS. ROY: Mike Allen.

DR. ALLEN: Yes.

MS. ROY: Cynthia Grace-McCaskey.

DR. GRACE-MCCASKEY: Yes.

MS. ROY: John Kilborn.

DR. KILBORN: Abstain.

CHAIRMAN NANCE: Thank you. I think this will provide us with two very good scenarios overall to look at at our March meeting. The next item we need to discuss is proportion of the uncharacterized bottom that is exploited by the fleets. We had some good presentations on that yesterday. Paul, please.

DR. MICKLE: Just very quickly, and I apologize, Mr. Chair, just to jump in, but help me clarify where the line is of -- I guess we call it external independent review, and so, when the Great Red Snapper Count came out, it was reviewed by external independent reviewers, and then it came in front of the SSC, and there were recommendations made by those independent external reviewers, and there was execution of that, and then we did it again, and so we're following the reviewers' direction, and then the SSC is approving.

This motion that just passed is going to cause a post-strat analysis, which I don't think was given any direction by the reviewers, and it was kind of manifested within the SSC, as direction, and so does what we just passed a motion on follow the same suit as everything has to this point? I hope that everybody understands, but is this going to go out for external independent review and then the SSC, like everything else to this point, or is it just coming here, and where is the line?

CHAIRMAN NANCE: To my understanding, Paul, it's just coming to us.

DR. MICKLE: Well, time-wise, that makes sense, but consistency and perception is another thing.

CHAIRMAN NANCE: Well, I guess, perception-wise, it's one of those things where we'll take a look at -- We know how that first one was done, with all the analysis and so forth, and there looked like there was some interest in a post-stratification scenario, which we're asking to look at, and then we'll talk about it, the pros and cons of it, at our March meeting. Ryan.

MR. RINDONE: I apologize, Mr. Chair. I didn't mean to signal Bernie.

CHAIRMAN NANCE: Okay. Any other -- Paul, that would be my understanding on that, and so this would not go out for external review or anything else, and it would just come back to us, and we would use our own expertise to be able to look at that and see whether it was better or worse than the other. Paul.

DR. MICKLE: So, to that point, the SSC has confident scientists that do peer review, or this is what this body does, and I have no issue with it, but I just wanted to understand where it was and that, if we can do consistency, we can, but, anyway, this is a post-stratification kind of request by the SSC, and so it seems like the SSC made the request, and so we could do the review. Thank you.

CHAIRMAN NANCE: Thank you. Sean.

DR. POWERS: To Paul's point, and I want to highlight something that Greg said yesterday. I mean, the Great Red Snapper Count is over. I mean, we've given the estimate, and there is still that one addendum I think that Will and Greg are working on, but, essentially, the -- I mean, we're not changing the Great Red Snapper Count results, but we've always intended to make the data available, and any type of use of that data in a stock assessment, or interim analysis, I think is fair game, but just to reiterate that we're not modifying the Great Red Snapper Count, but, as Greg pointed out, that study is over, and that number is that number, but that doesn't mean we can't use those data points in a different type of analysis.

CHAIRMAN NANCE: Sean, I appreciate you reiterating that, and it's been said many different times, but that reiteration is great, because the number is the number, and, like you're saying, the Great Red Snapper Count report is done and complete, and we do have that data, and that's what we're using for these other analyses, and so thank you for that. Jim.

DR. TOLAN: Thank you, Mr. Chairman. To Paul's point, it's almost been sort of my perception that the external review really looked a lot at the nuts and bolts of how the Great Red Snapper Count was done, a lot of the stats behind it, and the results that came out of it -- I don't think they really knew enough about the vagaries of Gulf of Mexico red snapper populations to really dive down to the point that we're diving now, because, when we got the results, we looked at it and said, well, there's something off of Florida that we think needs to be looked at a little closer, and I think

that's what we're doing now, and so I'm perfectly okay with us sort of going off in this other direction with these last two motions that we've put forward, and so I think, for Paul's reservations, I think we're in pretty good shape here for the SSC. Thank you.

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

DR. PATTERSON: I will just speak to the Florida issue, and not so much the Gulf-wide, but, when Ted was giving his presentation yesterday, he mentioned that the results, many of the results, that he was presenting weren't available when the random forest model was created in Florida, and so we should take advantage of new information to improve an estimate.

I agree with Sean that the final report for the Great Red Snapper Count is completed, and that estimate is what it is, with the addendum to the final report that had to do with going away from the stratified random approach advocated for by the CIE reviewers to back to the random forest calculation, but this new process, after the report, I think we should take advantage of information, where we have it, to refine estimates, and so that's why I indicated yesterday that I was very open to the discussions, and I think the way Katie characterized this earlier about a collaborative, collegial interaction is accurate.

There is no -- It's been a very open exchange, and, if we find new places where we think we can, within the scope of what was done, improve the estimate, then we should pursue that, because, you know, ultimately, that's what peer review is. It's an iterative process, and we want to produce the best estimate, in this case, and so, as far as the Florida number, I think that makes perfect sense.

This idea of exploring it in other regions, sure, but we don't really have any data yet to inform that, and the one -- The idea about where possible I think is important, in the last motion, because of where samples are distributed, and it may not be possible.

CHAIRMAN NANCE: Will, absolutely, and I think that's what science is, is a collaboration, and I'm really thrilled to hear that that is going on, because that's the way it should be. Let's go ahead though and talk about the proportion of the uncharacterized bottom that's exploitable by the fleets. Any discussion on how we come to a consensus on what proportion of that is usable? Sean.

DR. POWERS: I have been struggling with the vocabulary here, Jim,

and you said what proportion of the uncharacterized bottom is exploited, and I agree, but there's two ways to look at that, and I wanted John to qualify -- Are we looking at what proportion of the stock on that uncharacterized bottom is exploited or what proportion of the area of the uncharacterized bottom is exploited? I think it's the former, but I'm not positive.

CHAIRMAN NANCE: Okay. John.

DR. WALTER: Sean, thanks for the question. The analysis we need is what proportion of the stock is on the entire Gulf and not just the UCB.

DR. POWERS: Okay, and so it's not actually the proportion of the uncharacterized bottom, and it's the -- Do you have the -- Is there a way to break it down more, in terms of what Jim just pointed out, what proportion of the uncharacterized bottom is done, because I think we largely know that all the artificial reefs are exploited, and most of the natural banks and reefs are, but what proportion of the uncharacterized bottom is exploited, of the stock on the uncharacterized bottom.

DR. WALTER: Possibly. We didn't frame the analysis in that way, and it's possible we could do that, and that was the structure by which, in April, the OFL was derived, based on assuming all structure is fished and then some fraction of the UCB. An alternative analysis we did is an alternative one that just looks at the total fraction of the stock biomass that is fished, and that -- Right now, I would have to get back to you about whether we could frame it in that same way it was done before, but, right now, the 37 percent applies to the total biomass.

CHAIRMAN NANCE: So I guess, from my perspective, or our perspective, from the SSC, is to give direction to the Center, and maybe I am using an inappropriate term here, proportion of the uncharacterized bottom, and I guess I'm trying to figure out what guidance do we need to give to the Center for their analysis about the proportion, and I guess proportion of the stock that is exploited, by the fleets, and how do we go about giving that direction to the Center? Any comments on that?

DR. PATTERSON: Jim, I have my hand up, but it's not showing up yet.

CHAIRMAN NANCE: Okay. Will, please.

DR. PATTERSON: Thanks. This is going to sound a bit semantic, but, technically, the proportion of the population vulnerable to

the fishery is the stock, and so, here, if you want to say -- If you're talking about the proportion of the population vulnerable to the fishery, then that's what should be said, and I would couch it that way, versus habitat, right, because of the discussions that have been going on, and we don't have maps of habitat everywhere, and so -- Ultimately, that's what the analysis is producing, is the proportion of the population that is exploited.

CHAIRMAN NANCE: Will, you're absolutely right, and thank you for that comment, for sure. Sean.

DR. POWERS: So the proportion of the stock that's exploitable, I agree is the major focus, but I'm trying to think about what the rest of the -- That's pretty much exploitable, because it's in too low densities for anybody to want to fish, but that does serve as some type of spawning stock reserve, and so, I mean, it's almost like talking about -- This is not a perfect analogy, but talking about sanctuaries, where you do have this reserve of spawning stock that could guard against recruitment overfishing, even though our focus is on that 37 percent, and do we relax what we think about how hard we can fish that, because we know we have, or we suspect we have, this large reserve of spawning stock? I am not totally buying into it's only on the accessible, exploitable stock, because we do have this potential reserve of recruitment.

CHAIRMAN NANCE: This is what we talked about last time, and so I can just look at it there, and so it's basically the SSC discussed the -- Let's see. Revise the about of UBC included in all the structure subsets to 13 percent from the random forest model and 22 percent estimated from the Gardner et al. analyses, and so this is from our discussion last time, and this gives us a little bit of a thing about what we talked about last time. Go ahead and bring the sheet up again, please. John.

DR. WALTER: I raised my hand when I didn't see other hands, and I was going to try to help foster conversation and bring up what I talked about yesterday about trying to frame the uncertainty we have in the fraction of biomass that might be fished and then the impacts of non-random fishing on the biomass, or non-reallocation of fishing, and those are the two key uncertainties that I think we have here, and provide a range and a distribution of the probability of biomass being fished.

This is something that I think the Science Center might be able to flesh out more, and we don't have it quantitatively derived right now, but it might be something similar to our -- To the way that we buffer the ABC from the OFL, due to scientific uncertainty, and I guess, in terms of -- If I could sort of beg the question of

what might be asked of the Center by the SSC, some way to be able to incorporate this uncertainty that might avoid simply having to pick one number, and that, I think, would be consistent with how we try to give advice and how we try under scientific uncertainty, and so I look forward to further conversation. Thanks.

CHAIRMAN NANCE: Thank you, John. Jason.

MR. ADRIANCE: Thank you, Mr. Chair. I think John brings up a good point because there were a lot of questions yesterday, in particular off of Louisiana, about the analysis, and so I'm not sure -- Is it to a point where we can currently use it without discussing that uncertainty, and, in a broader view, to me, the exploitable of whether folks can get to that or not, as Sean talks about a de facto reserve, that almost gets, to me, to be a management issue and how it's going to be -- Do you let folks locally deplete it when your stock size is available to handle it? I guess where I'm getting at is I'm not sure what this analysis does for me yet. Thank you.

CHAIRMAN NANCE: Thank you, Jason. Roy.

DR. CRABTREE: Well, if you look at the interim analysis that's in the briefing book, they looked at analyses based on all structure, all structure plus 15 percent of the biomass over the uncharacterized bottom, and then I guess everything, and the catch levels that come out of all this are really sensitive to this, and so it makes a big difference, and my fear -- I don't expect the fishery is going to redistribute themselves in where they fish based on any of this, and so, if you set a catch level based on the idea that the fishing is spread out across the entire population, you are going to have, I think, serious localized depletion.

I mean, we did this, forty or fifty years ago, and we crashed big parts of the stock, and so, reserve fish out there or no, it is possible to drive this stock down into when it's in pretty bad shape, and so I do think we've got to give some guidance here, and I don't think using the grand total of the whole estimate is really a viable option, but I don't have any -- I mean, I guess, to me, I would want to see the all structure done, and then maybe all structure plus 10 percent of the uncharacterized bottom, and all structure plus 15 percent of the uncharacterized bottom, and that's similar to what the Center did last time, but it puts in an extra look at 10 percent, and that's sort of my thinking at the moment.

Then we're going to come back to the whole issue of how do we derive an ABC from these OFLs, and that's going to get into the

uncertainty issue that John was talking about, but, right now, I guess that would sort of be my suggestion, is that we go with the all structure, all structure plus 10 percent, and all structure plus 15 percent, or something close to that.

CHAIRMAN NANCE: Okay. Thank you, Roy. Mandy.

DR. KARNAUSKAS: I had sent in a motion this morning that I thought about yesterday, and, based on the comments from Roy and Jason, I don't know if this is the right time to bring it up, and I don't want to derail this conversation, but I did want to bring it up, as it relates to Roy's comments, and so I think, Bernie, you received it.

CHAIRMAN NANCE: Okay. Let's go ahead and bring it up.

DR. KARNAUSKAS: Okay, and so this is what I had suggested, and I can read it off and then give a little explanation here. **The SSC encourages the SEFSC/council to consider how catch level increases could impact different fishing sectors with respect to the ability to redistribute fishing effort according to localized abundance and depletion patters.**

I left it as "SEFSC/council", and I'm not sure yet if this is something we want to direct the Center to look into or just the council to think about, but let me explain what I mean, and, again, Roy basically got at it, but, if you increase the catch limit, you're inevitably going to increase effort nearshore, and potentially exacerbate some localized depletion patterns, and I think it's important to consider the numbers that John showed yesterday in the analysis.

If you look at Alabama, currently, about 85 percent of the stock is exploited, whereas, in neighboring Florida, only 27 percent is exploited, and I think that has significant implications for the sectors and within sectors.

For example, if you take like the for-hire sector, you have people who cater to corporate clients and go way offshore, multiday trips, and then you've got communities in Alabama where they are highly dependent on red snapper season, and they cater to family-oriented clients, and they can't do more than half-day trips. They don't want to go all the way offshore, and so, if you're creating these depletion zones, you are inevitably creating winners and losers in each sector, according to how their businesses work and their ability to redistribute around these depletion patterns.

Again, I apologize if this is derailing the conversation, and I

was going off the standing council motion that Carrie went over yesterday, which was to consider National Standards in the discussion, and I think this is relevant to fair and equitable distribution and discussions around optimal yield, and so I wanted to throw it out there. Thank you.

CHAIRMAN NANCE: Thank you, Mandy. Do we have a second for this motion?

DR. SAUL: I will second it.

CHAIRMAN NANCE: Thank you, Steve. Okay. Is there discussion? Let me go ahead and -- Sean, you were up before this motion.

DR. POWERS: Yes, and I was just going to expand a little bit on what Roy said, and I guess that was my question to John originally, is what does this 37 percent mean in comparison to the previous kind of guesstimates, and it's all structure plus what percentage of the uncharacterized bottom, to try to think about what the new analysis does to give us an equivalent number, and I know John is exploring whether he can give us that type of comparison, but I just wanted to make that clear.

Also, I will add that I agree totally with Will's comment that we cannot exploit the entire number that came out of the Great Red Snapper Count, and we have seen what that has done historically, and that's not possible, but the -- I just wanted to see if John -- Just stating it a little better, so that John understands what I was trying to get at, and, essentially, it's all structure plus what percent of the uncharacterized bottom, to see what the new analysis says compared to the other guesstimates that we tried to use.

CHAIRMAN NANCE: Thank you, Sean. John.

DR. WALTER: Thanks, Sean, and thank you, Chair. Yes, I think I get it clear what the request is, and we'll work on trying to get that, assuming that basically all known structure is fished and then what fraction of the uncharacterized bottom, which is probably a lot of unknown structure, is fished and see if we can restructure that.

Then, just to get to the uncertainty regarding Louisiana, we did run the same analysis with the commercial distribution replaced with the recreational distribution, and that gave an estimate of 38 percent of the total biomass is fished at about 1 percent exploitation, and so, to kind of answer how influential that is, it wasn't that influential, if we assume that the rec and

commercial fish similarly. We could probably explore that further, but I think that at least gives a ballpark. Thanks.

CHAIRMAN NANCE: Okay. Thank you. Jason.

MR. ADRIANCE: Thank you, Mr. Chair, and thanks for that, John, and I wasn't advocating that we use the whole number, but I was just trying to illustrate some of the uncertainty, obviously, that we have with this. Thanks.

CHAIRMAN NANCE: Okay. Thank you, Jason. This motion, as it reads, is that helping our discussion? Roy.

DR. CRABTREE: Well, I think we're going to come back to another -- To the original discussion, and we'll need some motions there, but certainly I think Mandy's point is valid, and this is something that the council is going to look at, because, depending on where you set the catch, you are likely to see some localized depletions in some areas, and I suspect you will see that off of Alabama and the Panhandle of Florida.

That is going to affect different parts of the fisheries differently, and it may be that some parts of the fishery, for example the for-hire fishery, may in fact benefit from lower catch rates, as long as the fishing remains good enough that they can sell their trips, and they may get a longer season out of it.

The commercial guys will probably have to spend more time and money to catch a pound of fish, but, on the other hand, there will be some more quota available, and so I don't know how that plays out, but it's going to affect different areas very differently, and I think that is something the council needs to give a lot of thought about, and I think they really need to understand that just getting more and more fish isn't going to be better if you end up in trouble.

Then there's the whole question to be resolved, I guess, when we get the new assessment, of how this plays into the recovery and continuing to rebuild the stock and where we are. We have so much that has changed in our perception of the red snapper stock that that's really difficult to understand at this point, and so I support Mandy's motion, but I think we're still going to have to come back to specific direction to the council about what we want to see.

CHAIRMAN NANCE: Yes, and I think so, too. Jason.

MR. ADRIANCE: Thank you, Mr. Chair. I don't have anything in

particular against the motion, but, just in reading it, isn't this what this whole process does anyway and what the council's charge -- Doesn't this fall under their charge anyway? Is this just to reinforce that, because this seems like something the council considers anyway in their deliberations. Thank you.

CHAIRMAN NANCE: Thank you. Richard. You are breaking up, Richard. You're really breaking up bad. Let's go ahead, while Richard is fixing that, and, Will, please.

DR. PATTERSON: We've already seen this potential issue, although not related to the increase that may result in landings or the quota resulting from the Great Red Snapper Count study and trying to incorporate that into management.

We've already seen the spatial dynamic that is related to the motion here, in east versus west, where we have different trajectories through time in the east versus the west, and we have different histories of exploitation in the east versus the west, and we have different SPRs in the two regions, and the long-term projections are that the west will be -- It would have to be well above the SPR of 26 percent to make the Gulf-wide SPR 26 percent in recovery.

I will just remind folks that the SSC, based on results of SEDAR 7, where we had the CATCHEM model was the first to assess the Gulf-wide stock as two separate sub-stocks, east and west, and the SSC recommended, based on the science, that not only should the stock be assessed as two different units, but it should be managed as separate units, and now we're going to have a new -- There's a research track, and then there will be the operational assessment that follows, and there may be some different ideas about what the population structure is incorporated into that assessment, but at least, on a couple of different occasions, after 2007, the SSC recommended to the council that the red snapper -- That Gulf red snapper be managed, as well as assessed, as separate east and west sub-units.

CHAIRMAN NANCE: Yes, and that's very true. Jason.

MR. ADRIANCE: Mr. Chair, that must be left over.

CHAIRMAN NANCE: Okay. Thank you. Let's go ahead and -- Richard, I'm sorry, but I am not understanding the sound, for sure. Let's go ahead and take care of this motion, as it's stated.

The SSC encourages the Southeast Fisheries Science Center/council to consider how catch level increases could impact different

fishing sectors with respect to the ability to redistribute fishing effort according to localized abundance and depletion patterns. Any opposition to this motion as read?

DR. PATTERSON: Jim, I don't oppose it, but I abstain from voting.

CHAIRMAN NANCE: Okay. Let's go ahead and do a roll call again, just so we can get those abstentions, if there are any.

DR. POWERS: Jim, I have one question about the motion that will influence my vote.

CHAIRMAN NANCE: Okay, Sean. Thank you.

DR. POWERS: Can you put it back up?

CHAIRMAN NANCE: Yes, sir. There you go right there, Sean.

DR. POWERS: Thanks. Mandy, do we have any data on the flexibility right now of the fleets to redistribute fishing effort? I am just wondering if we're asking for something that we simply can't do. I mean, do we have an idea of how the fleet can redistribute effort? I mean, I know, in hindsight, we can look at how they redistributed effort, based on new catch levels, or changes in catch levels, but do we have a sense of how flexible the fleets are now?

DR. KARNAUSKAS: Thanks, Sean, for the question. That's a good point. I think we have definitely qualitative information, and we certainly have VMS, which could be used to look at fleet distribution, and I don't know if we want to go down that road with the detailed analysis, although the Science Center has done some work looking at flexibility of the fleet, for example, to fish around red tide events, based on VMS, and so we do have some existing information that could look at the extent to which the fleet can redistribute.

On the recreational, the for-hire and the private, side, obviously, it would have to be more qualitative, but we do have some information looking at size of the boats and the horsepower of the boats and these types of things, and so we could get a qualitative sense for can folks go way the heck offshore if you can't find any red snapper nearshore and that sort of thing, and so I hope that answers your question.

DR. POWERS: Yes, and so that does a little bit, and so the redistribution for red tide would be how the fleet, the commercial fleet, responds to changes in abundance?

DR. KARNAUSKAS: To the actual bloom, and so, for example, we looked at their typical fishing grounds, when those got hit by red tide, to what extent were they able to go around them, or to what extent did they go around them.

DR. POWERS: Okay. Thanks. That's it, Jim.

CHAIRMAN NANCE: Thank you very much. Here's Rich's comment. What I intended to say was I support the need to carry out the analysis suggested in the motion. However, this is a behavioral analysis, and I have seen no analysis presented that would correctly answer this question. Okay. Thank you, Richard. Jim.

DR. TOLAN: This might be a procedural question that goes to Ryan, but can a member vote present, because I don't disagree with the motion, but I just don't think it's something we need to be telling the council to do, because, like has been brought up, this is something that is under their purview, and so can I vote present?

MR. RINDONE: Mr. Chair, I think you would just abstain. By saying that you abstain from the vote, you are saying you are present, but not voting on it, and you can do that for any reason that you deem as being appropriate for doing so.

DR. TOLAN: Thank you, Ryan.

CHAIRMAN NANCE: Steven.

DR. SCYPHERS: Thank you, Mr. Chair. Mandy, I like this motion, and I definitely support it. The question I have was similar to the others that came up about if the data, or information, is available, and this is just a question, and it doesn't have to be a friendly amendment, but I wondered about the potential of adding a second sentence that, if the data or information is not available, some motivation to identify the data that could be needed, or useful, to do this type of analysis, and I don't even know if the appropriate audience for this is the Science Center or the council, but it seems like, if the answer that came back is we don't have the information, it would be nice to have some discussion over what type of information could be used, because I do think these are really important questions that I personally would like to see this type of information presented to us and us be able to discuss, and so that's it. Thanks.

DR. KARNAUSKAS: Mr. Chair, could I respond to that?

CHAIRMAN NANCE: Yes, please, Mandy.

DR. KARNAUSKAS: When I originally threw out this motion, part of my question is does the SSC see this as something where they would like the Science Center to do further investigation, or is this something that they just want to highlight that the council needs to pay attention to, yes, recognizing that this is already part of the council's purview, but just as sort of a -- To highlight it, or remind them, that these are the kind of things that can happen, and so I think there's two separate pieces here.

It could be telling the Science Center to look into these things or reminding the council that they need to be aware of these things, and we might want to split those apart and pick one or the other.

CHAIRMAN NANCE: Mandy, the way I'm reading this one, it's just this is kind of a -- I won't say a reminder, but it encourages to consider how, in all their deliberations and so forth, to consider how catch level increases could impact different fishing sectors. Ryan.

MR. RINDONE: Thank you, Mr. Chair. You guys often talk about the directionality of some of the things that we investigate and some of the decisions that are made, and I think directionality here is something that you should talk about, and we've talked about considering how catch level increases could impact different fishing sectors, and decreases can impact those fishing sectors in a similar way.

As the density of fish, and the spatial distribution of fish, change with time, I think that that's definitely something that we could track using annual VMS data and looking at shifts in the distribution of fishing effort over time using the VMS data. Now, clearly that's biased toward one fishing sector, but let's be honest with ourselves, right, and, I mean, fishermen fish where the fish are, and so, if you want to know where the fish are, look where the fishermen are going.

Clearly the Great Red Snapper Count, and other studies, have shown that there are smaller densities of fish per unit area spread over very large amounts of the Gulf, and that could account for considerable biomass, and I think a couple of you have talked about -- I think Dr. Powers talked about it as almost being like a reserve, and not really a reserve, because it's not restricted, but just because the CPUE there is so low that that, in and of itself, discourages fishing, whether it be recreational or commercial.

Either way, going back to that directionality thing, just something for you guys to think about is that this really does go both ways. Whether the catch levels increase or decrease will impact fishing sectors, with respect to the redistribution of fishing effort and effects on localized abundance.

CHAIRMAN NANCE: Thank you, Ryan. Jack.

DR. ISAACS: I certainly am happy to see that the SSC here is asking the Science Center to consider these type of issues and their effect on fishers and different sectors and things. Just I am concerned that, the way it's worded, or maybe my perception of the wording, in issuing a direction of this sort to the council, that it may be perceived as steering a policy recommendation in a way that I find a little uncomfortable. Thank you.

CHAIRMAN NANCE: Okay. Thank you, Jack. Trevor.

MR. MONCRIEF: I definitely see Jack's concerns there, and what I also wanted to bring up is that we have the VMS data on the commercial side, but we also have -- What will benefit this motion is we've had a fairly consistent recreational fishery over the last few years, which is very good at establishing a status quo of how the fishermen behave and put some consistency in everything else, and so I think, if this goes through, and there are changes in the future, there will definitely be something to be able to link back to to see how the fishery changes, and that's the comment that I wanted to make.

CHAIRMAN NANCE: Okay. Thank you. Let's go ahead and take action on this motion and be able to move on to others. Steven Saul, please.

DR. SAUL: I was just going to propose a minor friendly amendment. If people are uncomfortable with the council component, just to remove the word "council" from the motion.

CHAIRMAN NANCE: Mandy?

DR. KARNAUSKAS: Yes, I'm happy with that friendly amendment. I was going to actually suggest the same, based on the previous comments, and so that's just fine.

CHAIRMAN NANCE: Okay. Let's go ahead and take that out then. Steven Scyphers, please.

DR. SCYPHERS: Thank you, Mr. Chair. **I was also going to suggest a friendly amendment to this first sentence, if Mandy would**

consider it, and I actually think we could possibly strengthen the language and change "consider" to "analyze", and then I emailed a potential second sentence that addressed the spirit of what I said a second ago. If the data aren't available, then some sort of encouragement to identify what data could be used, or useful, in this setting.

I also just want to say that, another point that I was going to make, Ryan said it exactly. I think, in the broader context, and the first part of this is for this specific circumstance, but I totally agree, more broadly, that declines in catch limits also have the big social and economic consequences, and so that second part would be, in spirit, much broader than this specific context, but I would totally leave it to Mandy, if she supports these changes or would rather them be addressed separately. Thanks.

DR. KARNAUSKAS: I am happy to accept Steven's changes.

CHAIRMAN NANCE: Okay. Steven, are you okay with that, also, Steven Saul?

DR. SAUL: Yes, that works.

CHAIRMAN NANCE: Thank you. I think, Bernie, probably in that second sentence, we just change it to "Southeast Fisheries Science Center" and take "council" out. Doug, please.

MR. GREGORY: Just a small, persnickety point is all of these recommendations, even though they are targeting the Southeast Fisheries Center, are really recommendations to the council. We as a body cannot ask the Center directly to do anything, and I don't think the wording is that important, but just to understand that this all goes through the council, and it's the council decision whether to ask for this stuff or not. Thank you.

CHAIRMAN NANCE: Good point, Doug. I think the way it reads is we're asking, and not telling, but through the council to the Southeast Fisheries Science Center. Let me go ahead and read the motion, as stated, and then we can take a vote on it.

The SSC encourages the Southeast Fisheries Science Center to analyze how catch level increases could impact different fishing sectors with respect to the ability to redistribute fishing effort according to localized abundance and depletion patterns. If sufficient social and economic data is not available, and that probably should be "are available", for those analyses, the SSC encourages the Southeast Fisheries Science Center to identify specific data gaps and needs for assessing the impacts of changes

in catch limits. Let's go ahead and take a vote. Bernie, please.

MS. ROY: Mr. Chair, Benny Gallaway --

MR. RINDONE: Is it "are" or "are not" available?

MS. ROY: Benny Gallaway had his hand up for a second, and I don't know if you wanted to check with him before I take roll call.

CHAIRMAN NANCE: **Probably "are not available".** Go ahead, Benny.

DR. GALLAWAY: You caught it. It's "data are", and not "is", but "are".

CHAIRMAN NANCE: That was drilled into me long ago. Let's go ahead, Bernie, and let's take this vote.

MS ROY: Okay. Jim Tolan.

DR. TOLAN: Abstain.

MS ROY: Sean Powers.

DR. POWERS: Yes.

MS ROY: Trevor Moncrief.

MR. MONCRIEF: Yes.

MS ROY: Doug Gregory.

MR. GREGORY: Abstain.

MS ROY: Dave Chagaris.

DR. CHAGARIS: Yes.

MS ROY: Lee Anderson.

DR. ANDERSON: Yes.

MS ROY: John Mareska.

MR. MARESKA: Abstain.

MS ROY: Jack Isaacs.

DR. ISAACS: Yes.

MS ROY: Steven Saul.

DR. SAUL: Yes.

MS ROY: Thank you. Rich Woodward.

DR. WOODWARD: Yes.

MS ROY: Thank you. Will Patterson.

DR. PATTERSON: Abstain.

MS ROY: Paul Mickle.

DR. MICKLE: No.

MS ROY: Benny Gallaway.

DR. GALLAWAY: Yes.

MS ROY: Harry Blanchet.

MR. BLANCHET: Yes.

MS ROY: Jason Adriance.

MR. ADRIANCE: Abstain.

MS ROY: Luke Fairbanks.

DR. FAIRBANKS: Yes.

MS ROY: Mandy Karnauskas.

DR. KARNAUSKAS: Yes.

MS ROY: Steven Scyphers.

DR. SCYPHERS: Yes.

MS ROY: Jim Nance.

CHAIRMAN NANCE: Yes.

MS ROY: David Griffith.

DR. GRIFFITH: Yes.

MS ROY: Roy Crabtree.

DR. CRABTREE: Yes.

MS ROY: Luiz Barbieri.

DR. BARBIERI: Yes.

MS ROY: Michael Allen.

DR. ALLEN: Yes.

MS ROY: Cynthia Grace-McCaskey.

DR. GRACE-MCCASKEY: Yes.

MS ROY: Josh Kilborn.

DR. KILBORN: Yes.

CHAIRMAN NANCE: Thank you very much. We'll go ahead and take a fifteen-minute break here, and we'll come back at 10:50 Eastern Standard Time. Thank you.

(Whereupon, a brief recess was taken.)

CHAIRMAN NANCE: We'll go ahead and get started here. That motion we just passed, and the motion carried nineteen to one with five abstentions. Doug Gregory, please.

MR. GREGORY: Thank you, sir. You laid out some issues that need to be addressed this morning, and, if I remember right, we've got one more to go. I have something I want to introduce, but I don't want to do it in the middle of what's been going on.

CHAIRMAN NANCE: Okay.

MR. GREGORY: Just when we have a break, because it's a different tangent on this whole thing.

CHAIRMAN NANCE: Okay. Perfect. Why don't we go ahead, and Roy has got his hand up, and let's go ahead and move that, and, Doug, we'll make sure that you have that option, for sure. Roy.

DR. CRABTREE: Okay. To try and get us moving down the road on the analyses we want to see, I would like to make a motion. **That is that the SSC requests the Southeast Fisheries Science Center**

catch analysis look at the following scenarios: all structure, all structure plus 10 percent UCB, and all structure plus 15 percent UCB. UCB is uncharacterized bottom. If I get a second, I will give some rationale.

CHAIRMAN NANCE: Okay. We have a motion on the table. Do we have a second?

DR. TOLAN: I will second it.

MR. RINDONE: Mr. Chair, is this for the OFL or for the ABC, or what is this for?

DR. CRABTREE: **For the OFL.**

CHAIRMAN NANCE: OFL.

CHAIRMAN NANCE: Did somebody second it?

DR. TOLAN: I did, Mr. Chairman.

CHAIRMAN NANCE: Thank you, Jim. Roy, for discussion?

DR. CRABTREE: I am largely following what was done in the interim analysis, or the catch analysis, whatever you want to call it, that you looked at back at the March meeting, and I have refined it a little bit, and the previous one looked at all structure, all structure plus 15 percent UCB, and everything. I have not included the all fished in mine, and I have added in 10 percent as another scenario. I just don't see looking at catch levels based on the entirety of the population to be a viable way to go, and so I would sort of like to just take that off the table right off the bat.

CHAIRMAN NANCE: Okay. Thank you. Is there discussion for this motion, please? I think it certainly, as Roy indicated, it follows the same pattern that we used last time, which I think is a good option here. Paul, please.

DR. MICKLE: I just -- I had a problem with the last motion, and I have a problem with this one, and it seems like the SSC is a review committee reviewing scientific analyses and documents and reports through peer review, and we're actually requesting analyses to be done, and then we review it, I guess, and I don't know. Journals don't send out requests for papers. They review and publish papers. That is through the peer review process that I am most familiar with, and this just seems very alienating to the way I understand what the SSC's purpose is. Thank you.

DR. CRABTREE: If I could, to that point, Jim?

CHAIRMAN NANCE: Yes, please.

DR. CRABTREE: I don't see how we get to fulfilling our charge, which is to consider giving OFL and ABC advice, without asking for these types of analyses, and this is, to me, no different than if we had an assessment before us, and we would ask for some sets of projections to get to catch levels. We would typically come in and ask for projections, and we're sort of doing this here, and so I hear what you're saying, Paul, but I just don't know how we do what we've been asked to do without requesting these types of things.

CHAIRMAN NANCE: I think it's also basic guidance to the Center, so they're not just coming up with their own scenarios and things. David, please.

DR. GRIFFITH: I would just like to ask where you came up with the 10 percent and the 15 percent figures.

DR. CRABTREE: Well, if you look back at the interim analysis that's in the briefing book, the Center considered the 15 percent to be a reasonable proxy, I think is their language, and I don't have it in front of me, but a reasonable proxy for apportionment of the stock that is typically being fished, and so I went with that, and I put in the 10 percent just as another kind of placeholder to look that would offer clearly a lower set of OFLs, and so it would be, I suppose, more conservative and deal with some of the uncertainty a little bit.

I know we're going to deal with uncertainty next, and so nothing magical about those, but I think, in the last evaluation the Center did, they thought that 15 percent was a reasonable proxy for where they were, but, if someone wants to add in 20 percent, or another one, I wouldn't have any problems with that.

CHAIRMAN NANCE: Thank you. Sean.

DR. POWERS: I would like to see one more option, but, again, the 10 and 15 percent are fine, and I understand where they were came from, but they were guesstimates, and, again, John Walter might be able to produce a new number on that, and I don't know how we caveat the motion to include the other number that we don't know yet, but I would like to see it, just because 10 and 15 percent were kind of guesstimates.

They seem reasonable, but, given that John did a whole analysis on

this, I would like to see what that number is, and I assume it's probably somewhere in between, and maybe it's in between 10 and 15 percent, or maybe it's lower, or maybe it's higher, and so I don't know how to add that in the motion, but I would like to see another number, and maybe John can give us a stab at what he thinks that new number would be, and we just give the range.

I also like John's idea of doing the whole distribution around the best point estimate that he could come up with, and so I would be fine with this or if the Center can come up with the point estimate and give us a distribution around that point estimate, and that would be even better for getting some uncertainty in.

CHAIRMAN NANCE: Okay. Katie, you can address that question?

DR. SIEGFRIED: I just wanted to bring up an issue with the percent UCB, not that John would bring up, but the sort of practical application of this. Matt Smith had to get the percent UCB, or the proportion UCB, of each of the state estimates, I think from Greg and his team, before this was presented in March/April of last year, and I am looking at the table in 13a, Table 1, and, as this was discussed before, Florida has natural and uncharacterized together.

We've got uncharacterized bottom broken out for the other states, but we would need -- Perhaps this was solved earlier and I just didn't catch on to that, but how would we break out that for this analysis for the Florida portion?

CHAIRMAN NANCE: I guess how did John do it last time, or Matt, I guess, and it was Matt, wasn't it?

DR. SIEGFRIED: Let me grab that, really quick.

CHAIRMAN NANCE: What we're trying to do is -- From what Roy is indicating, we're trying to follow the same analysis patterns that we did last time, which I think is an appropriate way to do it.

DR. SIEGFRIED: I believe he's on the call, if he would like to speak, or I can get a chat from him, but I thought it was still an issue, because we didn't get the natural and uncharacterized split out in this Table 1 that's on the screen, but it was some communication by email outside of the meeting where we got that.

CHAIRMAN NANCE: Okay. Matt.

MR. MATT SMITH: Initially, and, honestly, my memory does not serve me, and it was either broken out in one of the initial documents

presented by the Great Red Snapper Count, and I'm searching through my email, to try and find it, and it was either already broken out in a table or somebody from the Florida team, Rob and Will's group, broke it out and sent it to us.

I received a table that had this information separated at the time of the March/April analysis, and I am working to try and figure out exactly where that table came from, but it was not split out by me, and it was presented to me split out, and so somebody had done it in the past, and we would use that same methodology again, as long as we can figure out how it was done for the previous rendition of this.

CHAIRMAN NANCE: Okay. Will, if you have any recollection on that, certainly provide that. Trevor.

MR. MONCRIEF: Thank you, Mr. Chair. I was going to keep following down -- Sean, I agree with his points, and I was wondering, number one, should we put another bullet into that motion, and, if it doesn't seem appropriate, then, number two, how flexible would it be in that analysis to plug-and-play the various numbers, should we get a new value in from the analysis that's being conducted, and so would it be as simple as getting a more appropriate number and plugging it in and then reviewing that work during the meeting, kind of like what we talked about yesterday a little bit with some of the other stuff?

CHAIRMAN NANCE: I am not sure how, and Katie could respond to that, but I think there's the -- They would like to have as much input as possible beforehand, and, if we're asking for a lot of analyses to be done during the meeting, and for the next day and those types of things, that's where the Center has issues, and understandably so, where they're trying to come up with these different changes, and so anything we can provide beforehand is certainly a benefit.

MR. MONCRIEF: All right, and so should we add in a fourth bullet, or take away one of those that's already there, like the 15 percent, and put in "or other proportions of UCB based on ongoing analyses", and would that fit --

CHAIRMAN NANCE: So something that would be provided by the Center?

MR. MONCRIEF: Right. Through what's going on now, when we talk about John's work ongoing and if he was going to come up with a different percentage or something else to use.

CHAIRMAN NANCE: Then just we could -- Let me finish that, and it

says, "other of UCB based on ongoing analysis by the Center".

MR. MONCRIEF: Yes, other percentages based on ongoing analysis.

CHAIRMAN NANCE: Okay. Roy, any issue with that?

DR. CRABTREE: No, I'm good with that.

CHAIRMAN NANCE: Okay. Jim?

DR. TOLAN: I am fine. Thank you.

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

DR. PATTERSON: This is to Matt's questions from before, and I didn't provide it, or I don't think I did, and I just searched my email, and I don't see anything about the proportions of natural versus UCB in Florida, nor did we report that in either the tables based on Rob's analysis with the random forest or Lynn Stokes' secondary analysis for Florida, and it was all presented as either artificial or uncharacterized. Perhaps Rob went back in and estimated that format, but I didn't do it, and it's not in the report.

CHAIRMAN NANCE: Okay. Thank you, Will. Matt, it's just, I guess, a question of hopefully you can find out how that was accomplished, and I guess you can let us know if that would be doable, and probably not now, but before the next meeting, and so, if those 10 percent and 15 percent were not doable, it looks like you would go to the Number 1 and Number 4, which Number 1 is just all structure by itself, and then Number 4 would be uncharacterized bottom portions based on the analyses and so forth that John Walter is doing.

MR. SMITH: Mr. Chair, digging back through my email, the table came from the Great Red Snapper Count report for the Gulf of Mexico Fisheries Management Council SSC in March of 2021, and it's in Table 5, and it's split out in that document. This was -- I received this email from Ryan Rindone on Wednesday, March 3, 2021, and it says: "All, please find attached the final project report for the Great Red Snapper Count".

That is where it came from, and, again, I don't know exactly how it was broken out at that time, but that's the document that it was pulled from, and I know we're now six renditions beyond this, and this was, I believe, the initial version of the report that was sent to the CIE reviewers and has been heavily worked up, and things have been changed since then, but that is where the

information came from that I used.

CHAIRMAN NANCE: Okay. Thank you, Matt. Ryan.

MR. RINDONE: Thanks, Mr. Chair. We put up a paragraph yesterday from the March/April summary, and I will just read the sentence again, because it's easier. Mr. Smith presented revised options for projected yields from the GRSC-informed analysis, using a point estimate of eighty-five million age-two-plus red snapper, which was that 110 million fish value dropped by two standard deviations, and revised the amount of the UCB included in the all-structure-plus subset to 13 percent estimated from the random forest model and 22 percent estimated from the Gardner analysis. That 13 percent appears to have been estimated from the random forest model and then 22 percent from the Chris Gardner et al. analysis.

CHAIRMAN NANCE: Okay. Thank you. I guess the question is are those values still applicable?

MR. RINDONE: It would seem as if it might be appropriate to reevaluate those based on the revised 96.7 million fish starting point.

CHAIRMAN NANCE: Would that be possible to do, and who would do that?

DR. CRABTREE: Jim, if I could?

CHAIRMAN NANCE: Yes, Roy, please.

DR. CRABTREE: Would that be covered under Number 4, if the Center could recalculate what that percentage is in some fashion like that, and then they could provide that to us?

CHAIRMAN NANCE: Yes, that would be covered there, but I am not sure they are capable of doing the 10 percent and 15 percent, and maybe I am wrong on that, that, since Florida is not broken out, that the 10 percent and 15 percent becomes an issue, in my mind.

MR. RINDONE: Mr. Chair, I believe it was an issue in March and April as well, and so like the nature of how the habitat was broken out in Florida does -- the rest of the regions that were sampled, and this was talked about extensively in March and April, and again a little bit this past September.

CHAIRMAN NANCE: Okay. John, please.

DR. WALTER: Thanks, Mr. Chair. I guess my preference would be to

use the analysis that we presented yesterday on the fraction of the total biomass, for two reasons. One, it is, we think, based on more empirical data, and we can write it up and repeat it, if needed. Two, it provides a range and a probability around the fraction that would be possibly fished, which might allow for uncertainty to be characterized.

Then the second reason is -- Well, we probably can repeat it and document it a little bit clearer than I think what might have been done before, and so I guess that would be my preference, just knowing that anything we do needs to be well documented and easily repeatable. Thanks.

DR. CRABTREE: John, can you tell us how to craft that into a motion? I mean, I am happy to withdraw this, if we have an alternative, but I'm just not sure how to put that into a motion.

DR. WALTER: What I would recommend here is that a catch analysis look at variable fractions of the fishable biomass, as best characterized by the, I guess, Walter/Gardner analysis, Gardner/Walter analysis, and, ideally, with the ability to incorporate uncertainty into that catch advice. That's my conceptual version, and it's perhaps not the most articulate language.

CHAIRMAN NANCE: Carrie, did you have -- Carrie, please.

EXECUTIVE DIRECTOR SIMMONS: Thank you, Mr. Chair. I was just wondering if, for Item Number 4, it should say "all structure plus other UCB proportions based on ongoing analysis by the Science Center".

CHAIRMAN NANCE: Probably. John, with that analysis, it's the uncharacterized bottom that you're dealing with, correct?

DR. WALTER: No, and our analysis is all biomass.

CHAIRMAN NANCE: Okay.

DR. WALTER: So the 37 percent is the total biomass, and it includes both structure and uncharacterized.

CHAIRMAN NANCE: Okay.

DR. WALTER: So, if we were going to entertain something similar, it would be different fractions of the total fishable biomass, ranging above and below the 37 percent, and I think that might give a range to facilitate some decision-making. One thing I will

note is that that analysis showed that there is 20 percent of the biomass that receives no fishing pressure, and it just can't be fished under the status quo, consistent with what we might be thinking here, and so then they're starting from 80 percent of the total biomass being fishable, and that would entertain some concept of you can't take it all, which I think was inherent in the minus two standard deviations, but I think we might have at least some quantitative information that shows you can't take it all unless you really change how you fish.

Then we can work down from there, based on the probability that the fishery would reallocate from its current, because, for them to spread out and increase the exploitation, it would mean that there would have to be a change from how they currently are, and, if the analysis we did shows that there is a lot of areas with low exploitation, and we could put a probability on that, I think it gives some way to incorporate that.

CHAIRMAN NANCE: Okay. Ryan.

MR. RINDONE: Thank you, Mr. Chair. This is probably back to the semantics a little bit, but it seems like it's pertinent in how we understand fishing behavior, and this is not a place in the Gulf of Mexico that cannot be reached by fishermen, and so I think it's incorrect to say that any portion of the biomass cannot be fished, and I think it's more that portions of the biomass are not fished, for reasons that are probably related to CPUE and other factors, but there is nowhere within where these fish occur that commercial and recreational vessels cannot get to, and technology that is available to them today allows them to find them. I would just caution us in using language like that, like saying that any portion of the biomass cannot be fished, and I think that that's incorrect.

CHAIRMAN NANCE: Okay. Thank you, Ryan.

MR. RINDONE: Now, the proportion of it that is fished, that we have evidence that exploitation is happening over these areas, that's another matter, but all of it is accessible.

CHAIRMAN NANCE: Okay. Thank you. How do we move forward with this motion?

DR. CRABTREE: Well, I'm thinking of withdrawing the motion at this point, and then perhaps we could take ten minutes and ask John Walter and Ryan to get on the horn and see if they can put down some words that reflect what John is talking about, and then, if we could get a draft motion along those lines, I would be happy

to make that motion when we came back, because I'm just not sure how to put what he is suggesting we do into a motion.

CHAIRMAN NANCE: Okay. Ryan, is that doable?

MR. RINDONE: Anything is doable, Mr. Chair.

CHAIRMAN NANCE: Okay.

DR. CRABTREE: All right, and so I will withdraw this one, if my seconder is in agreement.

CHAIRMAN NANCE: Is that okay, Jim?

DR. TOLAN: That's fine.

CHAIRMAN NANCE: Okay. Thank you, sir. Let's go ahead, and I guess --

MR. RINDONE: Do you want to take ten minutes?

CHAIRMAN NANCE: Yes, let's take ten minutes, and we'll come back at 11:30.

(Whereupon, a brief recess was taken.)

MR. RINDONE: I believe we're ready to make a mess.

CHAIRMAN NANCE: Okay. Let's reconvene then.

MR. RINDONE: Mr. Chair, the previous motion that was up on the board -- Basically, what we're looking at here is Point Number 4, and I will let John describe what we talked about on our brief call that we just had about an approach that might work here, and so, John, you're teed-up.

DR. WALTER: All right, and so the discussion that I brought up was that you're working on, and don't take this down verbatim, but I will just discuss it. We'll work on a method to use the Gardner analysis to quantify the probability of biomass being exploited, and this gives some probabilistic framework around the uncertainty we have about how fishing may change its locations and how the impacts of not changing locations might affect the population.

Based on that, the analysis that we did that came up with 37 percent of the total biomass is exploited is a function of the choice about the exploitation rate to define that as, and I think we can turn that into a probability distribution where you would

have larger biomass exploited if you allowed a lower exploitation rate.

Then what I would say would be useful is to allow the SEFSC to explore means to better define, in probabilistic terms, and quantify the uncertainty related to the amount of fishable biomass and to incorporate that into a catch advice framework. I think it can be general like that, and I think we've got the flavor of how we're going to try to do that, but, really, we would need to spell it out in written mathematical terms before it would be really of use right now.

CHAIRMAN NANCE: So how do we need to put that on there, Ryan?

MR. RINDONE: More succinctly. It would be -- What we're talking about here is a little bit different than this all structure plus, and it's based on the -- I think it's meant to replace Number 4, Bernie. It's based on -- This is based on that 37.6 percent, right, John, and so it would be looking at that and trying to look at the uncertainty around how the amount of exploitable biomass changes with exploitation rate.

DR. WALTER: I am writing the text, and I will pass it to you, but just give me about a minute. It would be just in that Item 4, and so there would be 1, 2, 3, and then this alternative approach that may, or may not, solve the problem and provide at least an accounting of the uncertainty, rather than requiring a strict choice of 10 or 15 percent or all structure, which they're going to be influential, but, ideally, if we can pass that uncertainty into the advice framework, I think we would be more satisfied, and that's what I am trying to work on, and so stand-by for a minute.

CHAIRMAN NANCE: Okay. So we're going to keep this motion still viable, Ryan?

MR. RINDONE: For the moment, yes, sir.

CHAIRMAN NANCE: Okay. Harry.

MR. BLANCHET: Thank you, Mr. Chair. We've had a lot of discussion of this Gardner et al. analysis, and is it possible to send that most current draft to the SSC, because I can't seem to find it in my materials.

CHAIRMAN NANCE: We'll make sure that happens, Harry. Jason, please.

MR. ADRIANCE: Thank you, Mr. Chair, and this may be thinking too

far ahead, and it's kind of a point of order. Since this motion was withdrawn, but we're potentially adding to it in here, I guess it would need to be re-motioned?

CHAIRMAN NANCE: Yes. I am thinking that Roy would remake the motion once the fourth bullet is on there, and then we would need a second for that. I think the intent is still what we're trying to accomplish, but it's just a matter of wordsmithing Number 4 to be able to come up with an appropriate text that would allow the Center to accomplish the task which they're outlining.

DR. CRABTREE: I just need John to tell me what it was that I meant to say but didn't.

CHAIRMAN NANCE: That is what John is doing, yes. I think we're all trying to get to the same point, but it's just a matter of getting the right text in there so that we'll be able to accomplish that.

MR. RINDONE: Mr. Chair, to Harry's point, and anybody else that is looking for a scavenger hunt, if you go to the council's website, and you see the bar going across the top there, and there is the one for Meetings, and you go down to Meeting Archives, and I think Bernie is going to show you here. Then you go to SSC Meetings and go down to the March/April 2021 Meeting Materials. Then you scroll down to the April 1 and 2 portion, to Item 4a, and there's a bunch of stuff in there, and you go to the UCB Estimates Revised, and you can see a presentation of the work that -- Of the Gardner et al. work, and it was being worked on for publication at the time, which is why we didn't have a manuscript available to distribute for it.

CHAIRMAN NANCE: Is there one available now?

MR. RINDONE: John would know better. I don't know if there's something available to distribute at this point.

CHAIRMAN NANCE: Okay. Thank you, Ryan. Thank you, Bernie.

DR. WALTER: Ryan, I have passed you a sentence here for Bullet 4, Ryan and Bernadine.

MR. RINDONE: We're waiting on electrons. All right, and so, Bernie, I think John sent this to your personal as well. All right. I will send it to the other one. I will read it out. **The proposed is that the SSC requests that the Science Center explore catch analysis that incorporates two key uncertainties regarding the total biomass that might be accessible to fishery and potential**

impacts to the stock from localized fishing. I think it stays as Number 4.

CHAIRMAN NANCE: Roy, do you want to offer that?

DR. CRABTREE: You're good with that, John Walter?

DR. WALTER: Well, I am good with it. However, this is not my motion, and it's my friendly suggestion.

CHAIRMAN NANCE: Absolutely.

DR. WALTER: I can't even offer an amendment, but this is just a friendly suggestion, because I'm not a member of the committee.

DR. CRABTREE: Okay, and so, Jim, I will make that motion.

CHAIRMAN NANCE: Okay. Do we have a second for the motion?

MR. RINDONE: Mr. Chair, we can probably delete all the way to "incorporate" and then just say "incorporate two key uncertainties regarding total biomass that might be accessible to the fishery and potential impacts to the stock from localized fishing".

CHAIRMAN NANCE: Yes.

MR. RINDONE: Then, that way, it lines up, at least, from a language standpoint with the rest of it.

CHAIRMAN NANCE: Okay. Jim, do you want to re-second that motion?

DR. TOLAN: Yes. Thank you, and I will go ahead and second that.

CHAIRMAN NANCE: Okay. Thank you, sir. Jason.

MR. ADRIANCE: Thank you, Mr. Chair. My question is to the last part of that portion of 4, where it mentions "and potential impacts to the stock from localized fishing", and, since we already passed a previous motion that kind of got at that, is that necessary here, and I have no strong thoughts either way, but it just seemed a little repetitive. Thank you.

CHAIRMAN NANCE: We could probably get rid of that last part, and it wouldn't change the intent at all, would it? Any issue with deleting that, Roy and Jim?

MR. RINDONE: It does kind of have the localized depletion, and it brings the localized depletion thing into question.

CHAIRMAN NANCE: Okay. Well, then let's go ahead and leave it there then. Okay. Any other discussion on this motion? I am going to read the motion, and then we'll vote on it.

The SSC requests the Southeast Fisheries Science Center catch analysis look at the following scenarios: 1. All structure; 2. All structure plus 10 percent uncharacterized bottom; 3. All structure plus 15 percent uncharacterized bottom; 4. Incorporate two key uncertainties regarding the total biomass which might be accessible to the fishery and potential impacts to the stock from localized fishing. John Mareska, please.

MR. MARESKA: Just trying to clarify, in my mind, and so this analysis -- Would this before the OFL, the ABC, or both, because my understand was this was for the OFL, and, therefore, I am not sure how impacts to the stock from localized fishing would be applicable, and so, if someone could clarify that for me, I would appreciate it.

CHAIRMAN NANCE: To this, I think this is for the OFL. Roy.

DR. CRABTREE: Yes, it would be for the OFL, and I think it would be helpful for John Walter or Ryan to again tell us what the two key uncertainties are and try to address some of this.

MR. RINDONE: So it's the total biomass that might be accessible to the fishery and then the potential effects of localized fishing, and so there's a point estimate, and, if you were only looking at this for one year, then you might not be as concerned about the effects of year-X on year-X-plus-one, but this catch advice is likely to be in effect for probably two years, if the rest of the SEDAR schedule holds true, and then, after that point, we would have revised catch advice, presumably, from SEDAR 74.

Regarding the total biomass that might be accessible, you would interpret that to be like the historically-exploited biomass, understanding that there are large portions of the UCB that simply don't experience fishing pressure, because of desperately low CPUE in those areas, or zero, if there's just no fishing that actually happens there, and it doesn't mean that it can't happen, but it just isn't.

Then there are, obviously, hotspots. If you guys remember, from yesterday's presentation, commercially, there are hot spots for exploitation occurring off of places like eastern Texas and off the Panhandle, commercially, and then, recreationally, in some of those same areas, with other distributions of higher exploitation

rates off of say Alabama and near the mouth of the Mississippi, near Louisiana.

CHAIRMAN NANCE: Thank you. John, did you have a comment on that, please?

DR. WALTER: Thank you, Mr. Chairman. The question from John is quite good, and, in my mind, Number 4 could help to inform both the OFL and the ABC, from the standpoint that the OFL might be what could be taken, but the ABC might want to be buffered from that by what is either likely to be taken or likely to not have negative impacts.

Even though those impacts of localized fishing are unknown and unquantified, there is the probability that the fishery won't reallocate and that it will fish quite heavily, and the spatial analysis could show that, and it would. If you assume the same pattern, you would get a lot higher exploitation rate in the areas that are currently fished, with a big increase in catch. As I envision it, you could potentially use that structure for both OFL and ABC, if it pans out. I don't know how that helps the motion here, other than there probably will be the need for a second motion that addresses the ABC, and this could be carried on simply as an option for that, carried over, and that maybe would be a suggestion.

CHAIRMAN NANCE: I think that's a good point, because we can do that -- This is for the OFL, but we still need to talk about the uncertainty that we want to buffer between the OFL and the ABC, and so we can utilize this for that also, I think, John. Harry.

MR. BLANCHET: Thank you, Mr. Chair. **A couple of -- Perhaps, if Roy will accept a friendly amendment, and, after "regarding", put in "(a)", and then, before "potential", add in "(b)", to make it clear what those two uncertainties are.**

The other point is Ryan made some remark earlier about the disparate abundances, and I think that it would be checked, when you get to the verbatim minutes, that this is "disparate" and not "desperate", and that's just something to check.

CHAIRMAN NANCE: Thank you, Harry. Roy and Jim, are you okay with that suggested change?

DR. CRABTREE: Yes.

DR. TOLAN: That's fine. Thank you.

CHAIRMAN NANCE: Thank you both. Jason, please.

MR. ADRIANCE: Thank you, Mr. Chair, and, to steal Doug's phrase, maybe I am being persnickety, but should we note OFL and ABC, where it's appropriate, in this motion, or is the discussion enough to deal with that?

CHAIRMAN NANCE: I think the discussion has been enough for that, I think, and, Jason, we're going to have a separate motion to discuss the uncertainty and the buffer we want to have between OFL and ABC, and so, while this one is for the OFL, we're going to have to have another motion that keys in on the uncertainty in the buffer we want. John.

MR. MARESKA: My point was the same as Jason's, and I felt like it should say "the catch analysis of the OFL", and so just to be specific and clear what we are requesting here.

CHAIRMAN NANCE: Let's go ahead and put that in, so there's no confusion, "catch analysis of the OFL", and that would be in the very first sentence, Bernie. I think that clears it up. I am going to read it, and then we'll vote on it.

The SSC requests the Southeast Fisheries Science Center catch analysis of the OFL look at the following scenarios: 1. All structure; 2. All structure plus 10 percent uncharacterized bottom; 3. All structure plus 15 percent uncharacterized bottom; 4. Incorporate two key uncertainties regarding (a) the total biomass that might be accessible to the fishery and (b) potential impacts to the stock from localized fishing. Let's go ahead and take a vote on that, Bernie, please.

MS. ROY: Jim Tolan.

DR. TOLAN: Yes.

MS. ROY: Sean Powers.

DR. POWERS: Yes.

MS. ROY: Trevor Moncrief.

MR. MONCRIEF: Yes.

MS. ROY: Doug Gregory.

MR. GREGORY: Abstain.

MS. ROY: Dave Chagaris.

DR. CHAGARIS: Yes.

MS. ROY: Lee Anderson.

DR. ANDERSON: Yes.

MS. ROY: Thank you. John Mareska.

MR. MARESKA: Yes.

MS. ROY: Jack Isaacs.

DR. ISAACS: Yes.

MS. ROY: Steven Saul. Steven is absent. Rich Woodward.

DR. WOODWARD: Yes.

MS. ROY: Thank you. Will Patterson.

DR. PATTERSON: Abstain.

MS. ROY: Thank you. Paul Mickle.

DR. MICKLE: Yes.

MS. ROY: Benny Gallaway.

DR. GALLAWAY: Yes.

MS. ROY: Harry Blanchet.

MR. BLANCHET: No.

MS. ROY: Jason Adriance.

MR. ADRIANCE: Yes.

MS. ROY: Luke Fairbanks.

DR. FAIRBANKS: Yes.

MS. ROY: Mandy Karnauskas.

DR. KARNAUSKAS: Yes.

MS. ROY: Steven Scyphers.

DR. SCYPHERS: Yes.

MS. ROY: Jim Nance.

CHAIRMAN NANCE: Yes.

MS. ROY: David Griffith.

DR. GRIFFITH: Yes.

MS. ROY: Roy Crabtree.

DR. CRABTREE: Yes.

MS. ROY: Luiz Barbieri.

CHAIRMAN NANCE: He's not on anymore.

MS. ROY: Okay. Mike Allen.

DR. ALLEN: Yes.

MS. ROY: Thank you. Cynthia Grace-McCaskey.

DR. GRACE-MCCASKEY: Yes.

MS. ROY: Thank you. Josh Kilborn.

DR. KILBORN: Abstain.

CHAIRMAN NANCE: Thank you. I think that motion carries us further down the line for getting what we're requesting from the Southeast Fisheries Science Center. We'll probably do the next item after lunch, but I wanted to just reiterate that we need to come up with the uncertainty surrounding what we want to consider as a buffer for the OFL -- I mean the buffer between OFL and ABC.

In the past, we've used around 25 percent, and so we may consider that, but, as soon as we come back from lunch, let's have a motion by someone to be able to put what we want to consider as the buffer between OFL and ABC, and part of that it sounds like John is going to look at that with the Number 4 thing we just talked about, but we could also state what we want to see as a buffer during their projections, so that we can have that done.

Please consider that, and we'll go ahead and come back at 1:00 for

the rest of the meeting. We have this item left, and then we have a presentation on standardized bycatch reporting methodology that we're going to hear this afternoon. Thank you.

MR. GREGORY: Mr. Chair, I want to present a motion before we move on to the next topic in the agenda.

CHAIRMAN NANCE: Okay. Doug, we'll be happy to entertain that, and thanks for bringing that up.

(Whereupon, the meeting recessed for lunch on January 13, 2022.)

- - -

January 13, 2022

THURSDAY AFTERNOON SESSION

- - -

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, January 13, 2022, and was called to order by Chairman Jim Nance.

CHAIRMAN NANCE: Welcome back, everybody. We'll go ahead and -- Doug, let me ask you, and do you want to do your motion first?

MR. GREGORY: I have some questions that may not result in a motion, and it depends on if I'm able to make sense here or not.

CHAIRMAN NANCE: Okay. Go ahead, Doug.

MR. GREGORY: What I am trying to do is visualize where we've been, where we are now, and where we're going with red snapper assessments and catch estimations and all of that, and so, clearly, we've had transitions in the past, and we've gone from yield per recruit to VPA to statistical catch-at-age and that sort of thing, and I see this as necessarily a transition to a new way of doing an assessment for red snapper.

The research track, SEDAR 74, will prove that out one way or the other, and so, from my understanding, the current biomass that we're dealing with is substantially larger than the biomass estimated from the traditional stock assessment, and, if that's the case, not only would the catch estimates change, but our status

determination criteria, what is MSY, should change, and our trajectory to rebuild the stock most likely will change.

What my motion would do would be to ask the Center to provide updated status determination criteria, rebuilding trajectory, and a three-to-five-year catch projection as part of the Great Red Snapper catch analysis that's going to be provided to us in March of 2022.

I mean, there's a remote possibility that we could already be rebuilt and not know it, and this also implies that recent fishing mortality rates are much lower than what we estimated in the stock assessments, and so I'm having a hard time piecing it all together, but it would be nice to kind of know where we're going with this, and if, Bernie, you would put up the motion I sent in, and, if I get a second, fine, I get a second. If not, then it dies, but I am just trying -- I mean, I feel like we're jumping off a cliff, and I want to see what we're going to land on. Thank you.

CHAIRMAN NANCE: Doug. Thank you. I appreciate that, and let me go ahead and read the motion, and then we'll ask for a second. **The SSC requests the Southeast Fisheries Science Center provide updated status determination criteria, rebuilding trajectory, and three-to-five-year catch projections as part of the red snapper catch analysis being provided to the SSC in March 2022.**

MR. GREGORY: I won't be surprised if Katie or John just say we can't do that at this time, and we've got to wait until the research assessment, but this would give us a feeling of where we are with the new data inputs.

CHAIRMAN NANCE: Let's go ahead and -- Do we have a second for this motion?

DR. ANDERSON: I will second that.

CHAIRMAN NANCE: Okay. Thank you, Lee. It's open for discussion, and I understand what you're trying to do, Doug, and I appreciate the amendment, or the motion. Dave Chagaris, please.

DR. CHAGARIS: Doug, I'm glad that you brought this motion forward, and I was wanting to ask a similar question that was related to this, and my question was going to be really directed, I guess, to the Center, and that is are exploratory runs with the SEDAR 52 stock assessment model -- Are those on the table for us to request at this stage, exploratory runs that would maybe, I guess, frame -- They would not be confused with a stock assessment.

The reason I'm asking that is because we seem to just jump to the conclusion that, with this higher abundance of red snapper, and the low abundance in the stock assessment, it's because there's this cryptic biomass, but yet, when we talked about the biomass distributions yesterday, and we asked why not use the maps of the Great Red Snapper Count, and the response, I think, was, well, if we did, then the whole stock would be vulnerable.

To me, that's an equally-valid hypothesis to consider, and, if that's true, one thing I want to suggest is that simply the scaling of the stock assessment is off, and that's probably because of the recreational catch harvest inputs that are going into it, and so, anyhow, I guess back to the question, and can we entertain the possibility for exploratory runs with SEDAR 52, to be presented in March?

CHAIRMAN NANCE: Dave, what you're asking for is using the assessment, the 52 assessment model --

DR. CHAGARIS: Yes.

CHAIRMAN NANCE: Then I'm not sure -- Anyway, okay. Will.

DR. PATTERSON: Thanks, Jim. Dave raises an interesting point here, but this has actually come up before. If you will recall, following the CIE and SSC review of the report from March of 2021, we had discussions, and Joe Powers mentioned, at the time, and he stated his frustration that, in October of 2020, there had been a presentation --

CHAIRMAN NANCE: I think somebody needs to mute.

DR. PATTERSON: There had been a presentation that Greg Stunz had given, a few of us members of the team had participated in congressional hearings that were designed to get an idea of where the estimate was headed, and it was preliminary at that time, but then there was a press release by NOAA, shortly thereafter, and then we heard from lots of different constituencies, stakeholders, and so the cat was kind of out of bag at that point, and Joe's frustration, as he mentioned then, was that it was five months later that we were meeting to review the report, the finalized estimate at the time, and how come there hadn't been some type of further analysis done in that intervening time.

I think Kai Lorenzen actually mentioned an additional scaling question, and so there was the catch, and one of the issues there is the FES recalibration, which gives you higher removals, and another parameter that was discussed was the higher estimates,

recent higher estimates, of discard mortality for red snapper, which would also cause a greater total kill, at least in the recreational fishery.

Then Kai mentioned the natural mortality scaling, and I don't want to misquote him, and you can go back to the minutes and see what he said about his back-of-the-envelope calculations and how just a little bit of adjustment to M could affect the estimates of productivity that would reconcile the two estimates, one coming from the stock assessment and one coming from the Great Red Snapper Count.

Then, fourth, there is also the time period that had passed since the data that was used in the assessment, in the SEDAR 52 assessment, and so, if the stock was continuing its rebuilding trajectory, then that population estimate from SEDAR 52 would need to be updated regardless, because of that. Anyway, this question has come up previously, and I just wanted to remind folks of that.

CHAIRMAN NANCE: Thank you, Will. Any other discussion?

MR. GREGORY: Shucks. I thought that I was being original.

CHAIRMAN NANCE: Ryan, please.

MR. RINDONE: Thank you, Mr. Chair. Just to remind everybody, the catch analysis that we're requesting of the Science Center is not designed to inform the pace of rebuilding or tell us where we are in the rebuilding plan or change the rebuilding plan or anything like that, and that's not what that analysis is designed to do, and that is reserved for the stock assessment process, and so that would require an operational assessment to be able to do that.

CHAIRMAN NANCE: Ryan, I know that to be true, for sure.

MR. GREGORY: Mr. Chair?

CHAIRMAN NANCE: Yes, Doug, please.

MR. GREGORY: What got me thinking about this was the comment that Ryan made yesterday that, whatever numbers we come up with, it has to fit the rebuilding schedule, and that made sense, and it started me thinking along this line of what are the other aspects of this, and, clearly, in my mind, if we increase the catches by 50 percent, or 60 or 70 percent, there's a chance that current -- That the historical rebuilding schedule will not be met.

Now, I know we're ahead of schedule, because, in the years past,

we used to set a buffer against the rebuilding yield, because we called it OFL, and then we set an ABC, and so we were rebuilding faster than our plan, from assessment to assessment, but I don't think we rebuilt that fast, but it's still -- This could jeopardize the rebuilding schedule, and, if we don't have this information, how do we know if it will jeopardize the rebuilding schedule or not?

MR. RINDONE: Mr. Chair?

CHAIRMAN NANCE: Yes, please.

MR. RINDONE: To clarify, no interim analysis, or catch analysis similarly constructed, is designed to be able to do this, and so, for other species that we have done these interim analyses -- Like we can't say that we're doing the same with those either, and so red grouper and gray triggerfish, and for anything that you do an interim analysis, you're modifying the catch based on that index of relative abundance based against the recent catch limits and the landings.

The information simply does not exist to be able to do what this motion is saying to do without doing a stock assessment, because there is a lot more at play than just what's been caught recently and what are we saying can be caught in the near-term. The interim analyses are not designed to provide long-term catch advice. They are designed to revise catch advice in the short-term between stock assessments, and "in the short-term" is the critical piece here, and this is short-term.

If you guys take this catch analysis, and you look at it in March, and you decide you want to make some kind of change, or not, or you do, but whatever, and let's say that you do. Then it's only going to -- By the time we're actually able to write it up in a framework action and transmit it to NMFS, and NMFS does their regulatory required hoop-jumping that they have to do, and I am grossly paraphrasing that, we're still only looking at this being on the books for about two years before we're looking at doing the exact same thing with whatever comes out of SEDAR 74.

In terms of using the interim analysis, or, in this case, hybridized catch analysis, process, that's not being violated. That is still considerably short-term, compared to how long we've had catch limits on the books from other stock assessments for other species, but this analysis that is being requested is not designed to provide the information requested in this motion, and so I don't know another way to be more frank than to say this motion cannot be done with the analysis that's requested.

CHAIRMAN NANCE: What this analysis is asking for is basically to do a stock assessment, really.

MR. RINDONE: Yes. I mean, this is tantamount to an operational assessment. You need an operational assessment to evaluate the multiple facets of known information about the stock in order to properly do a revision to the rebuilding plan, to project where that is at, and we simply aren't reconsidering that breadth of information, especially for a species like red snapper, as a component of what we're talking about requesting the Center to do for March.

CHAIRMAN NANCE: Yes.

MR. GREGORY: Mr. Chair?

CHAIRMAN NANCE: Doug, please.

MR. GREGORY: Can we somehow, and I don't know if it's already baked into the process with the Center, and I would like to hear from the Center everything Ryan is saying, to confirm it, and I don't disbelieve Ryan, but is the information that's going to be provided going to be sufficient for us to determine if a dramatic change in the ABC and OFL is going to put the stock at risk or not? That's the bottom line.

CHAIRMAN NANCE: Thank you, Doug.

MR. GREGORY: Then I will let it go.

CHAIRMAN NANCE: I appreciate this motion, for sure. Dave Griffith, please.

DR. GRIFFITH: Thank you, Mr. Chair. I was just thinking that I don't know whether or not this motion is doable or not, but I do think -- I've been listening to a lot of the red snapper stuff going on, and, also, I've heard from fishermen about the red snapper stock, and it seems to me that the SSC needs to acknowledge that it does seem like the stock is rebuilding faster, and, like Doug said, it may be at a point where it's already rebuilt, and I would just suggest that we somehow acknowledge that. I mean, maybe we will in the minutes, and maybe that's enough, but that's all I want to say.

CHAIRMAN NANCE: Okay. Thank you. Roy.

DR. CRABTREE: Okay. Well, I think all of us would like to have

that information, and I do think we need to hear from whoever is on the phone from the Science Center, but my understanding is that you can't get that information outside of an update of the stock assessment, and the other thing is -- So there is a lot of uncertainty here, but, when I hear going off of a cliff, or a dramatic increase in the catch, that has yet to be determined, and, as I look at all of this, given the amount of uncertainty that we're looking at, and the concerns that Doug is raising, that is justification for putting a pretty sizable buffer in place between the OFL and the ABC, because there are all of these concerns.

While I think a modest increase in ABC may be warranted here, I am not likely to support a dramatic increase in the catch for anything that would result in us going off a cliff, to use Doug's words, and so I think, if we handle this properly, and if we adequately consider the amount of uncertainty that we're facing, it doesn't have to go that way, but, yes, I would love to have them tell us where we are in the rebuilding trajectory and give us all of that information, but I think that's going to have to wait on the next stock assessment, which, unfortunately, as I understand it, we're not likely to see the results of until the end of 2024 or 2025. I think what happens here is still in the hands of the SSC, in terms of science advice.

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

DR. WALTER: Thank you. I see that I have three stars next to my name, and I think you should probably put three question-marks, and I apologize for jumping the gun here, or jumping the queue, and I will just answer this based on the reality of -- Ryan is exactly correct that the interim assessments that are index-based don't change or provide stock status information.

Whatever we're calling this catch advice now, based on the red snapper count, won't either, and the request that's in the motion would require rerunning the entire stock assessment with updated indicators and updated age information, to be able to be current with the most recent information, and, unfortunately, we just cannot do that by March, and the process of particularly the SEDAR prioritization has prioritized the research track to be able to incorporate the wealth of new information.

Unfortunately, we cannot give what I think we would all like to know before potentially using the Great Red Snapper Count analysis and catch analysis, but we just won't have that information to give, and the committee will have to make their best decision based on the information we have.

CHAIRMAN NANCE: Thank you, John. Steve.

DR. SAUL: Thank you, Mr. Chair. I echo some of Doug Gregory's concerns here regarding catches, and I would be curious to hear, and I don't know if this is the time or the place, but I would be curious to hear from the Science Center a bit, in terms of how they intend -- Maybe I just need to wait until March and to see how they intend to do this, but how they intend to sort of integrate these numbers, these Great Red Snapper numbers, together with the stock assessment values.

Of course, me, like everyone else, would love to have these projections, to know -- Especially if we're talking about increasing catch levels by 50 or 60 or 70 percent, and that's a huge amount, and it would definitely slow -- I'm sure it could slow the rebuilding process, and it's quite -- It will be quite uncomfortable to make those sort of decisions in March with such a large magnitude of increase, without really knowing, but, to Ryan's point, I understand very clearly that we need a full assessment to really project these things out.

To that end, when we do interim catch analyses, they are typically based on the model, the stock assessment model, that was from the prior SEDAR and approved, and then we just sort of update landings and re-project.

Here, we're essentially using -- We talked about, and I think it was named that Great Red Snapper values are from field-collected data, but they are ultimately modeled values, right, at the end of the day, and so, here, we're essentially -- For an interim analysis using new data, a new model, data from a new model, to set catch advice, and so I think that needs to be clear, that --

I don't know where that falls, in terms of the guidelines and boundaries and rules or whatever from what defines what is or is not an interim analysis, but I think it's important that we're clear that this is what we're doing and that this is clearly different from what is done in the past, and, as Roy mentioned, I would not be comfortable requesting, or approving, voting for an increase that is so drastic, 50 or 60 or 70 percent higher, even if it's just for the next two or three years, because that could make a huge -- When we really don't even know where we are, in terms of the rebuilding, currently. Thank you.

CHAIRMAN NANCE: Thank you, Steven, and I think the key is we're kind of saying what's going to happen in March, that we see this ten-million-pound increase and those types of things, and, when we

see what the catch analysis gives us, and we need to have consideration of a buffer, an appropriate buffer, between OFL and ABC, and we need to talk about that, and, once we see those numbers in March, then we will be able to determine -- I mean, if we're all uncomfortable with those numbers, then we vote that way. If we're comfortable with the numbers, then we vote that way.

I think we're kind of premature in saying what's going to happen in March, but I do hear what people are saying about it would be very nice to know rebuilding plans and things like that, which sounds like it's just impossible to accomplish within this timeframe. David.

DR. SAUL: I guess, just to clarify, the crux of my point was that this is just a different way of doing it, and that we need to -- Where, in the past, when you're projecting a whole model forward, you're sort of bringing all that uncertainty and stuff, and, here, we're sort of mixing methods, but thank you, and I will stop my comments.

CHAIRMAN NANCE: Thank you. David, please.

DR. CHAGARIS: Where I'm coming from is slightly different from Doug, and I can understand why this motion isn't doable before March, because it would require a lot of data updates and all that to get through the projection years, but we have probably the most sophisticated stock assessment model, at least Stock Synthesis model, and maybe it's sophisticated, or maybe it's just complex, but probably one of the most sophisticated and complex models in the entire world, but yet we aren't using it anywhere to help this information and really to help us understand the discrepancies.

What I am thinking is simply some runs that don't require any additional data, but will be completely exploratory, something like, for example, what if you doubled the recreational harvest, just across-the-board, and how does that scale the population up in the assessment model, because I am still trying to become comfortable with the higher abundance estimates and reconcile those with the stock assessment, and we just haven't started that process yet. Like can we use SEDAR 52 for anything outside of a SEDAR process? Like can we use that model?

MR. RINDONE: Mr. Chair?

CHAIRMAN NANCE: Yes, Ryan.

MR. RINDONE: We pulled the age comps from, if you guys remember, from the March/April meeting, and the age comps were used from

SEDAR 52 to inform the age-weight and age-length relationships that were implied from the numbers of fish and the abundance estimates from the Great Red Snapper Count, because those data weren't collected throughout that range in a way that were available to the SSC to be reviewed at that time. Some of those data were still being worked up, and Will can probably speak better to what's available now versus what was available then.

Another issue is, with some of these postulated runs from SEDAR 52, is that that model uses data I believe through 2014, and so, basically, everything that would have happened with the stock since then, with respect to things like trends in recruitment and any changes in selectivity or catchability, would be continued, but albeit minor revolution in the IFQ program for the commercial fleet, effects related to things like sector separation for the recreational fleets, and so you have the splitting of the private vessel and the state-water components from the federal for-hire component there, things related to different seasons being used in different regions, through the state management programs.

I mean, there's an awful lot that doing this is simply going to ignore, and I think it's important to continue to remember that, if you guys do anything, it is short-lived, and it is going to be able to be revisited again as a result of the completion of SEDAR 74, which will include all of it, everything that's available.

Everything you guys are seeing now, a whole bunch of things that you're not even talking about now, like updates to life history and modifications to the way that discards are looked at for both fleets, evaluations about natural and discard mortality, and tons of tons of information, and, through that, you will get a much more comprehensive examination about whatever is going on with red snapper, and so this is -- If you do anything with the catch limit in March, it is short-lived.

CHAIRMAN NANCE: Thank you, Ryan. Benny.

DR. GALLAWAY: Thank you, Jim. I would like to offer an observation that is specific to the upper Texas coast and western Louisiana. In this region, I've been working with red snapper fishermen and doing red snapper research since the late 1970s, and we've been using the charter and commercial fishery as a base of logistics for the past five or ten years, and so they keep track of conditions, and I have been extremely impressed with their assessment of what the stock in the western Gulf of Mexico, in the region that I just described.

In their opinion, very similar to the trend analysis that we saw

in the bottom longline, the stock is in better condition than it's ever been before in their lifetimes, but, in recent years, up to and including this year, they do note that they think things are getting worse, and they don't know whether it's cyclical or not, but things are going down from what they were a few years back, and so I just offer that as an observation, and I think it's probably confusing things, rather than contributing, but I do think that we need to hope that the stock assessment very seriously considers dividing the eastern and western Gulf of Mexico into separate management units. Thank you.

CHAIRMAN NANCE: Thank you, Benny. Roy.

DR. CRABTREE: Just to kind of some of what Dave was talking about, with respect to an exploratory analysis, and what if the recreational catches were higher and these kinds of things, we've done those sorts of things over the years. I have seen exploratory runs off of various stock assessments that looked at what if the recreational catches are twice what we thought they were, and I have seen exploratory runs where what if we put the FES data in and used that, and I have seen exploratory runs of what if the natural mortality rate is higher or lower.

I mean, there's a long history of doing all kinds of exploratory runs, and that kind of stuff can be done, but we are sort of in a different situation than we've been in before, because we have never had a study like this, and we've never had an estimate of absolute abundance like we have now, and, unfortunately, we have an assessment that is out-of-date, at this point, really, and I think the terminal year in the last snapper assessment was 2016, and so it's five or six years old now, and that makes it hard to know what is going on.

I think anything you do with the current assessment is not going to take into account the numbers we have for the abundance estimate from the Great Red Snapper Count, and I guess the conclusion of the SSC, at the end, could be that we just can't give catch advice until we have a new stock assessment, and so we've got to go through the whole process, and that means we're going to wait two or three years to get to that.

Maybe that is where we'll wind up, but, again, I come back to all these issues that are being raised are manifestations of the uncertainty inherent in all of this, and I have heard, like Benny was talking about, fishermen saying they're not seeing as many fish, and I had a fisherman send me an email this morning with his catch levels in the eastern Gulf, showing how they were falling off, and I have heard things like that.

I think part of our advice to the council should be, if you raise the quotas, and raise the catches, you are likely to see localized depletions in some areas, and I think we have seen some of that, probably, because the state surveys have, in effect, increased the amount of fish being caught recreationally, and I think we're seeing some of the effects of that.

The only path that I can see, at this point, is either we just wait on the stock assessment and don't do anything with this Great Red Snapper Count and these interim analyses, or we give really careful consideration to the great amount of uncertainty that we're facing, and we make sure that we adequately take that into account and come up with a catch level recommendation that we can feel pretty comfortable with and is not going to get us in trouble and wait until we get a better, more full estimation out of the new assessment.

CHAIRMAN NANCE: Thank you, Roy. Josh.

DR. KILBORN: Thank you, Mr. Chair. I guess I'm a little concerned by a lot of this conversation, partially because, even though, if we do make any changes, they will be short-term, it really doesn't take long to collapse a stock, if we're incorrect, right, and so that's one of the things that is kind of nagging at me, is, if we're wrong, this could potentially be bad.

Maintaining the status quo of kind of doing nothing, like Roy was just saying, seems like the most conservative approach, and, if we're wrong to do that, and the Great Red Snapper Count abundance is actually correct, then we'll just rebuild a little bit faster than we might have, and so my real question here, for the group, is why are we jumping out of the official SEDAR process, especially since the research track for this stock is currently ongoing?

The same argument that it's a short time period could be made to just wait, right, and so I don't really feel comfortable jumping out of the process here, the way that we are, and considering this study as the new abundance, especially considering there is like a thirteen-million-individual standard error on the abundance level, and so, again, I just really would like to know why are we not sticking with the prescribed process that we always use for every stock and have always used for this very stock? Thank you.

CHAIRMAN NANCE: Ryan.

MR. RINDONE: Thank you, Mr. Chair. I will just remind everybody that an OFL has already been recommended by this body, using a

previous iteration of this information, and these interim-style catch analyses -- We now have a documented history of using these for two main purposes in between assessments, to temporarily modify catch advice until we get the next assessment and also to do kind of like heat-check on the stock and see how things are going.

Clearly, what's being asked of the Science Center, with respect to these data from the Great Red Snapper Count, differs from that, but what you guys are doing now is also in direct response to a council request for reanalysis.

To that end, I will also call your attention to Item 12b in your briefing materials, which is the Science Center's write-up of the interim catch advice for Gulf red snapper derived from the estimate of absolute abundance from the Great Red Snapper Count, and, specifically, within this document, Table 3, which looks at the number of age-two and older fish by area between the eastern and western Gulf of Mexico, with the different scenarios as it relates to using the all structure, the all structure plus, the grand total of all fish, and, again, this was under the 110 million fish scenario, and so bear that in mind, but, as any simulation, it's based on the information that's used, but it gives you some concept.

Then SEDAR 52 is on the far-right column there, and so you can compare that way, to see things like the percent of biomass that's thought to occur by eastern and western Gulf and also the total number of fish that's thought to be in those areas. That can help you, in some way or another, conceptualize what the numbers may be, given what you guys made decisions on at the March/April meeting.

CHAIRMAN NANCE: Are you on there, Lee?

DR. ANDERSON: I would just like to speak to what Ryan said about that something will come later, but I still think an honest assessment says let's do this unless it's absolutely going to hinder the research in the future and affect other things, and let's do it.

I am not convinced by the argument that there is something that's going to come later and it's going to do it, and we have to remember, quite frankly, that there's a lot of political stuff going on here, which we have not mentioned, but let's be honest, and let's get this stuff out there as soon as --

CHAIRMAN NANCE: Lee, you broke -- I didn't hear your last -- Are you still on? Okay. Lee, if you want to say anything else, go

ahead and come back on. Benny.

DR. GALLAWAY: My hand was not up, and that was previous. Thanks.

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

MR. GREGORY: Thank you. I didn't intend to create a lot of conversation, and I thought this would be a pretty quick, yes, we can do it or no, we can't do it, but I have enjoyed the conversation, and, if there is no objection from Lee or the body, I withdraw the motion. I would request that the motion stay in the summary report, or the minutes.

CHAIRMAN NANCE: That's fine. Lee, would you have any problem withdrawing this?

MR. RINDONE: Mr. Chair, it will be in the minutes, but we don't normally put withdrawn or failed motions in the summary, especially withdrawn motions. The body of the summary materials will capture all of this, and the SSC members will have the opportunity to review that, and, of course, the verbatim minutes will capture, in excruciating detail, what has been said.

CHAIRMAN NANCE: Lee.

DR. ANDERSON: I request that this brilliant motion by Doug is not removed.

CHAIRMAN NANCE: Okay.

MR. RINDONE: Well, if Dr. Anderson doesn't want it withdrawn, then --

CHAIRMAN NANCE: Then we have to vote on it.

MR. RINDONE: Then you have to vote on it.

MR. GREGORY: I'm agreeable to that.

CHAIRMAN NANCE: Okay. David, on that? Did you have a comment, before we vote?

DR. CHAGARIS: Yes, I do, and I guess just where I'm coming from is that we spent all this time really evaluating the Great Red Snapper Count estimate and trying to come up with numbers that it seems to be going in one direction, lower, and bringing it maybe more in line with the assessment, but we aren't devoting the same amount of attention to the stock assessment itself and asking,

well, what would it take for that estimate to come more in line with the Great Red Snapper Count, and that's the type of reconciliation that we just haven't had, and that's honestly, what I would need to kind of be comfortable with moving forward.

It doesn't necessarily have to be a model run that has updated data, or really changes anything, but how does the population scale relative to changes in the landings, which is, ultimately, what scales the population of the assessment model, is that we know that they are underestimated from the recreational data, and so that's just where I'm coming from. We have two estimates, but we're only really devoting attention to one, and we're not getting the full picture.

CHAIRMAN NANCE: Okay. Thank you. Steven.

DR. SAUL: Thank you, Mr. Chair. I am just wondering, and, if the Center cannot do these projections, right, like has been mentioned several times, can we even vote on this motion, or do we need to modify it to remove --

CHAIRMAN NANCE: No, we can vote on anything. The Center can certainly just, if the motion passes, and it may fail, and it may pass. If it passes the Center can just say they're not able to do this, and so it would be a simple request.

DR. SAUL: Okay. Thanks for the clarification.

CHAIRMAN NANCE: You're very welcome. Let's go ahead and vote on this motion, and I guess we'll need to do a roll call vote. Bernie, go ahead and bring that up and go ahead and go through it, please.

MS. ROY: Jim Tolan.

DR. TOLAN: No.

MS. ROY: Sean Powers.

DR. POWERS: No.

MS. ROY: Trevor Moncrief.

MR. RINDONE: Trevor had to step out. He's absent.

MS. ROY: Okay. Doug Gregory.

MR. GREGORY: Yes.

MS. ROY: Dave Chagaris.

DR. CHAGARIS: No.

MS. ROY: Lee Anderson.

DR. ANDERSON: Yes.

MS. ROY: John Mareska.

MR. MARESKA: No.

MS. ROY: Jack Isaacs is gone?

MR. RINDONE: Absent.

MS. ROY: Thank you. Steven Saul.

DR. SAUL: I guess yes.

MS. ROY: Rich Woodward.

DR. WOODWARD: Yes.

MS. ROY: Will Patterson.

DR. PATTERSON: Abstain.

MS. ROY: Paul Mickle.

DR. MICKLE: No.

MS. ROY: Benny Gallaway.

DR. GALLAWAY: Yes.

MS. ROY: Harry Blanchet.

MR. BLANCHET: Yes.

MS. ROY: Jason Adriance.

MR. ADRIANCE: No.

MS. ROY: Luke Fairbanks.

DR. FAIRBANKS: No.

MS. ROY: Mandy Karnauskas.

DR. KARNAUSKAS: I am going to abstain. I am not opposed to this, in principle, but I just don't see how it's technically possible.

MS. ROY: Steven Scyphers. It looks like he's absent. Jim Nance.

CHAIRMAN NANCE: I am going to say no.

MS. ROY: David Griffith.

DR. GRIFFITH: I think I will abstain.

MS. ROY: Roy Crabtree.

DR. CRABTREE: No.

MS. ROY: Luiz Barbieri.

MR. RINDONE: Absent.

MS. ROY: Mike Allen.

DR. ALLEN: I am going to vote no.

MS. ROY: Cynthia Grace-McCaskey.

DR. GRACE-MCCASKEY: No.

MS. ROY: Josh Kilborn.

DR. KILBORN: Yes.

MR. RINDONE: The motion failed, Mr. Chair.

CHAIRMAN NANCE: Okay. Thank you. Doug, I greatly appreciate you bringing this one up, and I really enjoyed the discussion around it, and I think it shows where we're all coming from, while we need to move on with the March meeting, and the March meeting is where we determine what we're going to do with these analyses that we're receiving, and so, with that said, we need to still come up with a -- To consider a buffer between OFL and ABC, and I would like to have a motion on that that we can discuss.

With the discussion that we've had, we certainly have typically used around a 25 percent buffer between OFL and ABC, and we can consider that, and we can consider that and a higher one, and so I would like to hear discussions and a motion on that topic.

MR. RINDONE: Mr. Chair?

CHAIRMAN NANCE: Yes.

MR. RINDONE: On the record, at present, is an OFL of 15.5 million pounds and an ABC of 15.1 million pounds, and so it's about a 2.5 percent difference between those, and one of the case studies where you guys have talked about the inadequacies in the performance of the ABC Control Rule, as it's currently designed, under the P* method, to be able to adequately capture the scientific uncertainty inherent in the assessment, and there have been, since then, multiple deviations, by the SSC, from the control rule to set buffers between the OFL and the ABCs and get the metrics, such as setting the OFL at the 50 percent probability of overfishing and the ABC perhaps at 75 percent, the yield at 75 percent, of fishing mortality at the maximum sustainable yield proxy, as just a single example. You guys have employed other methods as well.

CHAIRMAN NANCE: Yes, and I think, last time, Ryan, didn't we -- The OFL we used from the catch advice scenarios and the ABC, we tempered using the bottom longline data.

MR. RINDONE: So that's correct, Mr. Chair, but I don't know that I would say "tempered", because there were two separate surveys that were used to set catch limits, and that did cause a lot of confusion on behalf of the public that we had to try to explain, as to why one survey was being used to set the OFL and a different survey was being used to set the ABC.

Typically, a stock assessment, that's inclusive of all of these different surveys, is used to set the OFL and the ABC, and so it's the same source of data that ultimately is used to inform both, and so, from a management standpoint, what was done the last time is unique, in that it has never been done like that before in the Gulf, nor has it been done like that since, and so that's just a consideration for you guys, and it's probably more in keeping with how catch limits have been made in the past to use the same source of information for both, and I think Dr. Walter has talked about some different methods by which the amount that ends up being provided for the OFL can be decremented down to also be considerate of the ABC, and that's from that previous motion that helped inform about what to do as far as the OFL is concerned, with the four options.

CHAIRMAN NANCE: Carrie.

EXECUTIVE DIRECTOR SIMMONS: Thanks, Mr. Chair. I think Ryan

referred you guys to this, but you might want to take a look at Table 5 from the last Great Red Snapper Count interim assessment report. The Science Center produced some projections with two overfishing levels, and I don't know if you wanted to also consider those again for the March meeting, and perhaps some proxy in between those two, and they did an F at SPR 26 percent and 40 percent, and so maybe a 30, or a 35, and I know there was some discussion about choosing that more conservative fishing mortality at SPR 40 percent, perhaps, for the ABC. That's just a suggestion.

CHAIRMAN NANCE: No, that's a very good suggestion. Thank you, Carrie. Will.

DR. PATTERSON: Thanks, Jim, and thanks to Ryan for the history of how this was done the last time, back in March of 2021, when this sort of interim analysis was attempted the last time, based on the results of the Great Red Snapper Count estimate.

I think the SSC should avoid that approach, where one set of criteria is used for OFL and a second set for ABC, given that ABC is meant to be a reduction from OFL based on scientific uncertainty, and, given that is the case, I don't really understand this discussion now, because there are lots of moving parts out there that involve aspects of uncertainty that various folks have highlighted during this meeting that you won't fully know until March, and maybe not even fully know then, but you at least have a better appreciation for those sources of uncertainty. I'm not really sure how an approach for setting ABC as a reduction from OFL, based on scientific uncertainty, could adequately be proposed today.

CHAIRMAN NANCE: I guess, from my perspective, Will, I don't know if we need to have a -- Can we look at that at the March meeting, or do we need to come up with some buffers now, to have the Center run those, so that they would be available in March, and I guess that would be my question. Do you see what I'm saying?

I know what you're saying, but I'm worried about, in March, if we come with an OFL, and then we start trying to determine buffers around that, are we capable of doing that at the March meeting?

DR. PATTERSON: I don't know the answer to that, Jim, but we've just had a discussion about, operationally, things that can and can't be possible for March, and so I don't think that we should try to force an ABC discussion, or decision, even if we couldn't do it in March.

CHAIRMAN NANCE: Okay.

DR. PATTERSON: In the past, we've always made decisions about how that buffer will be constructed, whether we explicitly use the control rule, which it's not possible here, or we take a different approach based on expert knowledge, and so, anyway, that's just -- I probably should shut up and let other people weigh-in on it.

CHAIRMAN NANCE: Will, obviously, I always appreciate your comments, but I am just trying to facilitate, with my novice brain here, facilitate that we come to the meeting fully capable of making a decision if we need to, and we'll have OFL estimates, and I want to make sure that we have the ability to create the ABC at that meeting, also. Roy.

DR. CRABTREE: A few things. One, I think basing the OFL on one set of analyses and then setting the ABC on a different set of analyses, I think that is a problem, and I think that we should try to avoid that.

CHAIRMAN NANCE: Yes, we need to avoid that one, for sure.

DR. CRABTREE: Yes. Now, Jim, in terms of -- If you go all the way back to the old Restrepo technical guidance that Victor did, I guess back in the 1990s, and that's the first place that I remember seeing the suggestion of a 75, or even 70, percent, setting the OFL at 75 or 70 percent -- I'm sorry. Setting the ABC at 75, or even 70, percent of the OFL, and so a 25 or 30 percent reduction.

That was in that document as something that might be appropriate, and we have certainly applied that 25 percent rule in any number of occasions over the years. If we decided to do something simple like that, then I don't -- I mean, I don't know if we need a motion or not, Jim, because that's something we could calculate right away. Give us the OFL, and, okay, 75 percent of that is this, and that's the ABC.

CHAIRMAN NANCE: Okay.

DR. CRABTREE: It's really just a matter of deciding what is the appropriate buffer. Now, I was intrigued by what John Walter talked about in the motion we passed earlier under the Alternative 4 that might be able to put some probabilistic bounds on the various catch levels and give you some indication of what might happen, and it would be great if that would give us a really elegant way to incorporate the uncertainty and make a decision on that, but, until we see it, we won't really know.

I haven't heard anyone offer that a P* type analysis is possible here, and I have not been that happy with P* type approaches in the past, because I think they generally have underestimated the overall uncertainty that's in the assessment, and I think that has something to do with the configuration of Stock Synthesis, because, in the South Atlantic, we've had much larger buffers that come out of P* analyses, and they're using the Beaufort model, than we've had over here.

I don't know that that can be done here, and so, unless the good folks at the Science Center have some more ideas about things we could ask for them to do, we may be stuck with a more rule-of-thumb approach of reducing by 25 or 30 percent, and just where I sit today, as I think about the uncertainty, it seems to me that a reduction of 25 percent would be probably the minimum reduction that I would want to see as buffering this down, because I think there is much more uncertainty here than what we're typically accustomed to seeing.

Some of that is because the shift in the catches, potentially, is much larger than what we normally see, and I can't recall an assessment that gave us indications of such a large change in catches happening, and so that's kind of something that I think has caught everybody's attention and caused a lot of the heartburn that we're seeing here, and so, to me, this calls for a go slow and go careful.

Base the catches modestly, and see what happens, and it's almost like an adaptive approach, and make sure you don't make an error that is going to result in real pain and suffering in the fishery and undo all the progress that's been really hard won over the years, but, in terms of a motion, Jim, I have tried and tried to think of one, and, unless there's an analysis or something that we can request, I'm not sure what the motion is.

CHAIRMAN NANCE: I think, in listening to what Will said, and others, and Roy, I think it's probably premature, and I don't think a motion is necessary, and I think we see the OFL at the March meeting, and then we can construct an ABC that we're comfortable with, using those same data. Ryan.

MR. RINDONE: I yield.

CHAIRMAN NANCE: Harry.

MR. BLANCHET: Thank you. I had some audio problems, and I had to re-dial in, and so I may have missed some of this. I am kind of with Roy, in terms of I don't know that we should really be setting

something at this point, but I do believe that we should be at least, if we can, providing the Center with some thoughts in terms of what types of approaches we might be considering for the difference between ABC and OFL, because some of those might require more work ahead of the meeting than others, and I don't want to be having somebody put in a position of, oh, we could have done this if you had suggested this approach in January. That was just my comment.

CHAIRMAN NANCE: Okay. Doug, please.

MR. GREGORY: Thank you. I just wanted to point out that, in the Ralston paper, what they were recommending was that the fishing mortality rate be 25 percent below the maximum fishing mortality rate, or F of MSY. It wasn't a recommendation on total catch being 25 percent less.

However, recently, in January of 2020, the Center did recommend a range of percent reductions in catch as OY, which was different, but Ralston was talking about a 25 percent reduction in the fishing mortality rate. Thank you.

CHAIRMAN NANCE: Thank you, Doug.

DR. CRABTREE: Jim, to that point?

CHAIRMAN NANCE: Yes, Roy.

DR. CRABTREE: I recognize that, Doug, and I think, if you're talking about equilibrium kind of processes, a 25 percent reduction in fishing mortality actually gives you a much smaller reduction in the yields that are coming out of the fishery, and my recollection was that you can harvest like 94 percent of the yield by fishing at 75 percent of the F, but I think, in a given year, with a set amount of biomass in the water, if you fish it at F that's 25 percent lower, it seems to me that you would expect to catch 25 percent fewer fish. Now, over time, the stock would grow, because you're fishing less hard, and the difference would shrink, but I think, initially, when you first do it, they would be very similar.

MR. GREGORY: I agree.

CHAIRMAN NANCE: Okay. Thank you, and we've had a great discussion this morning and early this afternoon. I think we've provided the Center the information that they need to be able to run this catch analysis for us. We'll be presented with the OFL at our March 2022 meeting, and then, once we see that, we'll be able to

construct -- We'll use the March meeting to construct an ABC that we're comfortable with around that OFL, and we all need to -- I am just going to say this out, and we all need to be comfortable with what we're doing and the catch advice that we come up with in March, and we've had great discussion today on that, and so thank you for that. Ryan.

MR. RINDONE: Thank you, Mr. Chair. If we could just hear from the Science Center folks, before we cut this particular item loose, to be certain that what is being requested is well understood, and I think that would be good.

CHAIRMAN NANCE: That's a good idea.

MR. RINDONE: Just so that they're comfortable with where they need to go, and, based on my current intention of having you guys meet the week of March 7, that would put these materials as being due to me for posting by probably February 22.

CHAIRMAN NANCE: Ryan, thank you, and I appreciate that, because I may be very comfortable, and John and Katie are not, and so John.

DR. WALTER: I am conferring with staff and trying to make sure.

CHAIRMAN NANCE: That's good.

DR. WALTER: February 22 deadline, which is quick to get here, and we will need to make sure that we're good with it, and let me just also, while we are checking in on that, are we also going to be requested to update the traditional interim approach with the bottom longline index, while we are checking on the tasks?

MR. RINDONE: No.

DR. WALTER: Okay. Is that the group's --

CHAIRMAN NANCE: Yes, that's correct.

DR. WALTER: Okay. Stand by while I get confirmation on the other tasks. All right. Let me just go through what my interpretation of our tasking is from the motions. It will be to provide updated catch advice for the three scenarios of the fraction of UCB, and then to develop the fourth alternative approach that might incorporate the uncertainty in that, and then we are also -- That is for OFL, and then where I'm not entirely clear is for ABC, whether is going to be a desire for something that I think I am hearing is 75 percent of that. Is there also a similar desire to look at -- We gave SPR 26 percent and SPR 40 percent, which could

also provide a different buffer?

I would say that, as long as we recreate what we had done in the past, we can largely do that in that timeframe, and I would refer people to the report and the presentation materials from Matt Smith to show what we had done in the past.

MR. RINDONE: If the SSC members would like to take a minute to do that, that's Item 12b, Table 5. I think Bernie has it up, or it's coming up anyway. There you go.

CHAIRMAN NANCE: I think those -- I would be satisfied with those, for sure. I would like to hear from others. Roy, please.

DR. CRABTREE: I think a table like that is great. F 40 percent, I thought about it, and I really don't expect that the council is going to change the reference point until the new assessment is completed, and it may well be that the stock is less productive and that F 40 is more appropriate, but we really don't have a new estimate of productivity, and I think that's all kind of a handwaving sort of argument.

Maybe there is a way that you could use the yield at F 40 and F 20 percent, to somehow use that as a proxy of sort for reducing for uncertainty, and I am not quite sure about that, and, when I look at this, in terms of if you apply a 25 percent reduction, to go with 75 percent, it actually gives you a yield that is a little bit less than the yield at F 40 percent.

I don't have any problem seeing what the F 40 percent is, and just kind of gives us a gauge of maybe where we think things are going to head after the next assessment, and so I think it's worth having and looking at, but I really don't see the reference point changing until after the new assessment is completed.

CHAIRMAN NANCE: Sean.

MR. RINDONE: Mr. Chair?

CHAIRMAN NANCE: Yes, Ryan,

MR. RINDONE: To Roy's point, in changing the reference point, that's a council decision, and that has to be facilitated through a plan amendment, and so the SSC, just like it did for gag, can recommend a new proxy for FMSY, but that has to be adopted by the council through a plan amendment.

CHAIRMAN NANCE: Thank you.

DR. CRABTREE: Right, and I think that kind of decision will be better informed once the research track is completed, because I think they will devote some time to considering that.

CHAIRMAN NANCE: Sean, please.

DR. POWERS: Roy and Ryan covered the SPR thing, and I agree that it's fine to look at the 40 percent, but I don't think we could base our judgement, our advice, on that at this point. The other point is, John, you mentioned the 75 percent for the ABC, and I don't think we decided 75 percent, and I think Roy's point, which I agree with, was that's an easy calculation to decide whatever percentage we do.

I think that we can do that essentially on the fly, but, unless I missed the motion, we did not decide that 75 percent was going to be the only option, and that thought process of whatever percent -- It would be a relatively easy calculation.

CHAIRMAN NANCE: Sean, that's correct. Harry.

MR. BLANCHET: I have this serious feeling that I am throwing a relatively large monkey-wrench in the works, and so maybe it's not worth talking about, but I will do it anyway. We have talked, mentioned, several times during this meeting, about east versus west portions of the stock, and certainly one of the things that the Great Red Snapper Count had is it redistributes that biomass differently than the assessment does.

If you do nothing but increase the total allowable harvest, however you define that, you are also reapportioning that on a new basis, and I realize what has already gone forth, in terms of apportionment on the recreational side, but I just think that this is something that needs to be considered before we expand, proportionally, something that has been reassessed disproportionally, if you follow what I am saying.

The major part of the increase has come in the State of Florida, and then you redistribute that fishing effort across the Gulf of Mexico, and that's going to have different impacts in different parts of the Gulf.

MR. RINDONE: Mr. Chair, to Harry's point?

CHAIRMAN NANCE: Yes, please.

MR. RINDONE: The SEDAR 74 assessment, the stock ID process,

actually examined breaking the stock out into a three-area model, as opposed to just an east/west split, based on the totality of data that were analyzed during the stock ID process, and so the extent to which additional labor is put into breaking things out east and west may be usurped down the road by the efforts of SEDAR 74, and so I don't know the degree to which it's necessary to attempt that at this time.

MR. BLANCHET: I understand the complexity, but I just wanted to mention that what we're doing here is more than just inflating old balloons equally, and that's the only point that I was trying to make.

CHAIRMAN NANCE: Thank you, Harry. Will.

DR. PATTERSON: I lowered my hand.

CHAIRMAN NANCE: Okay. Thank you. John, there seemed like, when we were talking this morning, some proportionality stuff, and would that add a layer to what you're being requested to do? It was that first motion we did this morning.

DR. WALTER: I am looking that, and I was just inquiring with staff about Harry's comment, and the proportionality is addressed in what we did. Whether we could give advice east and west, based on the spreadsheet -- It would be based on the spreadsheet exercise and the existing east/west split.

It's potentially possible, but somewhat challenging, in the sense that the reference points are calculated stock-wide, and so there are some complications both in the mechanics of doing this and giving ABC advice for east and west and then there's the challenges of what do we do with it once we've got it, which goes even beyond then just the SSC decisions.

It's something that could help inform the motion to evaluate the redistribution of things, of the fishery, and I think it could be pertinent to advise upon that and say that the fishing mortality will not be applied equally, and increases in overall ABC may not be applied equally across the stock, because there is differential levels of effort. Right now, I will see whether we can give more quantitative information on that, but it's intriguing. Stand by.

CHAIRMAN NANCE: Thank you. Sean.

DR. POWERS: Just to one of Harry's points, and he said the biomass distribution is different, and remember that the Great Red Snapper Count was a number, and so the biomass between west and east, when

you take the size distributions that we got, isn't really that different than what we thought.

The numbers are, but the biomass is not, but this builds on, John, as much advice as you can give us on east and west, and I realize that would require some council action, on how we manage the two sub-stocks, or two stocks, differently, but clearly we all recognize that east and west are in different conditions, and whether we want to look at that issue at the next SSC meeting will depend a lot on what quantitative information you can give us on east/west.

CHAIRMAN NANCE: Yes. Thank you, Sean. Roy.

DR. CRABTREE: The east/west issue has been discussed many times over the years, and it's extremely complicated, because, if you did divide the Gulf into east and west, or something different, and think about it in terms of the IFQ program now, and you've got all these shareholders who hold quota, but it's just Gulf of Mexico quota.

If you're going to split it somehow, you would have to assign a certain amount of quota to the east and the west, and it is a hugely complicated management-side issue that the council would have to deal with to try and figure that out.

CHAIRMAN NANCE: Yes. Thank you. John, did that address your questions and any other concerns?

DR. WALTER: Well, it did, except that I think we can't promise to do anything right now quantitative.

CHAIRMAN NANCE: Sure. No, I understand.

DR. WALTER: We will give the qualitative information we can, and I think, to the extent that we can advise based on some of the empirical information we have from the VMS data, and I know our Social Sciences Research Group was actually quite intrigued to see the motion that asked for an analysis of potential redistribution, because this is something they have actually been working on, and so there may be some insights that we can glean there and have potentially useful information for the committee to see there, but I am not sure, given the challenges of the stock structure, what we would quantitatively advise on that and whether it would be even actionable information, given the current management paradigm.

CHAIRMAN NANCE: I think, like Sean said, as much as you can, we

would appreciate that.

DR. WALTER: Okay.

MR. RINDONE: Mr. Chair, can we review what the Science Center is being asked to bring?

CHAIRMAN NANCE: Yes, please.

MR. RINDONE: From my seat, we have the 96.7 million fish run, and then we have the 96.7 million fish with post-stratification for the shallow-water stratum, from ten to forty meters. Then we have -- So that's those two runs, and then, for each of those two runs, we have the options of all structure, all structure 10 percent, all structure 15 percent, and then Dr. Walter's wizardry. Does that all sound correct?

CHAIRMAN NANCE: From my perspective, yes. That's what we talked about this morning.

MR. RINDONE: I just wanted to get Dr. Walter's wizardry into the verbatim minutes, and that was the only reason I said it like that.

CHAIRMAN NANCE: Well, you did a good job, Ryan. John, that is what you're also thinking?

DR. WALTER: I know I can't remove things that are in the minutes, but, if I was a member of the committee, I would maybe strike them, and perhaps, at the next go-round, we can remove that word, because I doubt it will be wizardry.

However, the other thing I wanted to bring up was that we may, if the LGL study is considered, or, well, it will be considered, and I think we need to be able to have a slot in our analysis for using it, if it indeed is recommended for usage, and that's what I am kind of inferring here, and I just wanted to make sure we run by the group that if, like on day-one, that becomes recommended for usage, we could modify our spreadsheet to use it and get the green light to at least allow that capacity.

CHAIRMAN NANCE: Yes.

MR. RINDONE: Mr. Chair, there is presently no motion for that, and that would change the estimate that you guys have already passed a motion on, and you guys have talked about keeping those two things separate. That's also contingent on whatever decisions you guys make after reviewing the totality of that study's information, which we will need to devote some time to, to make

sure that the LGL folks and the SSC members have time to go through everything.

CHAIRMAN NANCE: Okay. I think that's where we'll leave it, right there.

MR. RINDONE: So I think that they're separate, based on the SSC's discussions about keeping the studies separate.

CHAIRMAN NANCE: Yes. Doug.

MR. GREGORY: Thank you. Well, this confuses me, because I thought all along, going back into I guess September, when we got the LGL presentation, that the idea was that it was possible to -- That that may be better data for Louisiana, because of the sampling problems the Great Red Snapper Count had for Louisiana.

I don't recall anybody taking that off the table, and so, if we need a motion to have that in the basket for John, I would be willing to make such a motion, or second such a motion, because I think that --

MR. RINDONE: We won't have the information for that yet, Mr. Chair, and so we have -- Dr. Gallaway spoke a little bit about what the revised analyses look like, but you guys still need to see the totality of that information and evaluate it before there can be a number, if you will, tagged on at the end of that discussion.

MR. GREGORY: Mr. Chair, yesterday, Katie said that incorporating that new number would be very easy, because it was essentially a spreadsheet-type calculation, and we let it go. I mean, I hate to wait until the verbatim minutes come out and find out that we have cut something off from our consideration that we really didn't intend to. Why else are we going through all these reviews of the LGL studies of Louisiana, if it's not be evaluated as a potential part of this? Thank you.

CHAIRMAN NANCE: You're welcome. Roy.

DR. CRABTREE: I guess I'm sort of in agreement with Doug, and I don't know if we need a motion, but I thought we have been pretty clear that it's quite possible that we'll come into the March meeting and decide that we think the LGL estimate is the better estimate and that's the one we want to use, and then we would change the number of fish accordingly, and we did talk to Katie about that, but I think, John, you should --

To the Center, they need to be aware that that's a possibility, and, when the information comes in on that, if they need to do any preparatory work in order to be able to adapt to that, they should, but I certainly don't want to do anything that would preclude our ability to decide -- To make that decision at the March meeting, and so we need the flexibility to decide, at that time, whether we believe the best estimate is the LGL study or to stay where we are with the Great Red Snapper Count.

CHAIRMAN NANCE: Okay. John.

DR. WALTER: Thanks. I don't think -- We're not looking for a decision point on the LGL study at all, and we were just looking for the green light to curate the process for it to be incorporated, if it is indeed the preference, and everything is always a little more complicated than we think at first, and we might have to convert the data into something, and so that's why it would be helpful for us to get it as soon as it's ready, so that we can set up the structure.

If it turns out that the study is not deemed useful to include, then we won't use that structure, and it won't be necessary to present it, but I just wanted to make sure that there's no surprises and so that we can do the preparatory work in advance, and I think, as long as the SSC is okay with knowing that that would be our preference, and gives the go-ahead, that that would be most helpful to us.

DR. CRABTREE: Well, to that point, Jim, that's certainly my preference, and I would certainly say that you should have a green light to do whatever preparatory work you need to do to be prepared to deal with it.

CHAIRMAN NANCE: Okay. Yes. Okay. It looks like what we would do in March is have the LGL analysis on the first day, the morning, that type of thing, and then we would have the -- If we deem the LGL data, that we wanted to see that input, we would then have that run, knowing that we would also have all of the other runs done just with the Great Red Snapper Count data, and so we would have those runs, and then, if we deemed the LGL data, that we wanted to see those runs, that that would be incorporated into a second set of runs, so that we would be seeing both of those. Is that what each of the SSC members understands there?

DR. CRABTREE: If I could, Jim?

CHAIRMAN NANCE: Yes, Roy.

DR. CRABTREE: So we go over the LGL study, and I think you said first thing.

CHAIRMAN NANCE: Yes.

DR. CRABTREE: Then it seems to me that we need to make a decision about which estimate that we think is the best and most appropriate to use, and then, if we decide that it's the LGL estimate, then the Center should be prepared for that and able to present us -- Now, if we decide it's the Great Red Snapper Count and not LGL, then --

CHAIRMAN NANCE: Yes, but I think what we're being asked by the council is to look at the Great Red Snapper Count and get numbers for that one, and so we need to do that one anyway, and then, as part of that, we can do one that is, if we deem the LGL number is a change for Louisiana, that we would do those runs for that, with the LGL. Ryan.

MR. RINDONE: Thank you, Mr. Chair. Just a reminder, because, last time, you guys, when you set the OFL, you reduced the 110 million fish by the value of two standard errors before consideration, and, if you were to accept the results of the LGL study, however they are presented, once Dr. Gallaway's group is done with all their final workup, those data for Louisiana have their own standard error, and it would differ from the current standard error estimate for the remainder of the Great Red Snapper Count estimate, and so there would need to be some math-ing out on that, before that could be looked at as an apples-to-apples sort of thing.

CHAIRMAN NANCE: Okay. Thank you, Ryan. With that, I think we're done with red snapper and the Great Red Snapper Count. I appreciate all the input, and let's go ahead and have a ten-minute break, and then we'll come back for National Marine Fisheries standardized bycatch reporting methodology. We'll come back at 2:45. Thank you.

(Whereupon, a brief recess was taken.)

CHAIRMAN NANCE: Ryan, take us through the scope of work, and then we can turn it over to Dan.

REVIEW: NMFS STANDARDIZED BYCATCH REPORTING METHODOLOGY

MR. RINDONE: Definitely, Mr. Chair. Mr. Dan Luers is with the Southeast Regional Office, and he's going to report the standard bycatch reporting methodology white paper with you guys, which has

been in development for quite some time, and it's been developed between the Southeast Regional Office, the Science Center, and the council staffs, and all of the fishery management plans that we develop and look after have to establish this standard bycatch reporting methodology to assess the types and amounts of bycatch that are occurring in each of these fisheries, and the purpose of this is to collect, record, and report these bycatch data.

We specify the standard bycatch reporting methodology for all of our sole and joint fishery management plans with the South Atlantic Council, but all the councils must explain, in their FMP, how the current standard bycatch reporting methodology is meeting the statutory purpose and is based on the analysis of four required considerations, and Dan is going to go through those considerations with you guys.

In consultation with NMFS, we have to review this every five years of the March 21, 2017 effective rule data, and so that's coming up here, and we have conduct follow-up reviews at least once every five years, and so this white paper that Dan is going to present uses data from 2015 to 2019 fishing years, where available, and, in cases where the data are not available, or complete, a summary of the most recent year's data is used.

This constitutes -- The information in this document constitutes the review that is required by the final rule, and so you guys should give Dan lots of feedback. Mr. Chair.

CHAIRMAN NANCE: Thank you very much. Go ahead, Dan, and give your presentation.

MR. DAN LUERS: Good afternoon, afternoon. My name is Dan Luers, and I work with SERO, with the Gulf Branch of Sustainable Fisheries, and, today, I am going to go through the SBRM five-year review. I know I haven't met a lot of you folks, because I am relatively new to the office, and, well, not too new, but, since COVID, I haven't really met anyone, and so, anyway, I hope to meet you guys at a future meeting, or at council meeting, at some point.

Today's presentation is going through the standardized bycatch reduction methodology five-year review, and, largely, what we want to do is look at it and see if the SBRMs we have in place are adequate, and, if not, what needs to be done, and so I'm going to give a brief summary of sort of background on SBRMs, and then I'm going to go through each of the fisheries and summarize those, and we'll kind of go through those piece-by-piece.

What are SBRMs? They are an established, consistent procedure, or

procedures, used to collect, record, and report bycatch data in the fishery, and the purpose is to collect, record, and report bycatch data that, in conjunction with other information, is used to assess the amount and type of bycatch. The council has SBRMs for each of our FMPs.

Now, according to Magnuson-Stevens, the term "bycatch" means fish which are harvested in a fishery but which are not sold or kept for personal use, and it includes economic and regulatory discards. Largely, in this presentation, I will just refer to bycatch, and that kind of refers to discards, and that is not the case in the second bullet. That does not include fish released alive under recreational fishery catch-and-release management program, and that's things like for say tarpon or billfish, where this a management program where, if you go fishing under a catch-and-release program, you are -- If you catch and release a fish, it's not considered bycatch.

Just to note that "fish" includes turtles, and so, anytime I refer to fish in this presentation, it would include turtles, but it does not include marine mammals or seabirds. Bycatch also does not include incidental catch, and so anything that is kept or landed, other species. For instance, when you're fishing for red snapper, and you catch a grouper and keep it, that would not be considered bycatch. That is incidental catch. Bycatch is composed of discarded species.

The purpose of this presentation is to inform the SSC of the requirement to review the SBRMs and outline what should be in the SBRM review, discuss specific fisheries and SBRMs, discuss progress and timing of review, and assess the adequacy of current SBRMs in each fishery, and so, for each fishery, we're trying to decide are the SBRMs adequate to assess the scope of bycatch, based on the four criteria that I will present in a second, or do the current SBRMs require changes or amendments.

This is the scope with which you should view the SBRMs, and so, basically, we are looking at characteristics of bycatch that occur in the fishery. Characteristics of bycatch are important in the fishery, but they aren't the amount of bycatch that occurs in the fishery. For instance, if we catch too much of a species, too many turtles, too many ESA-listed fish, or anything like that, that's not a problem for this review. The intent of this review is to make sure that we're capturing what we're catching and not necessarily saying that what we're catching is good or bad.

Number 2 is the feasibility of the methodology from a cost, technical, and operational perspective. For things like do we

have enough money for an observer coverage, and do we have money for higher coverage, and so those are things to consider under that, and then the uncertainty of the data resulting from the methodology, and are we getting data that adequately represents what we need it to, so that we can adequately estimate bycatch, and, finally, how are the data resulting from the methodology -- How those are used to assess the amount and type of bycatch occurring in the fishery and used in fishery management.

The questions that we want you to answer for each one is, is the bycatch reporting methodology feasible, from a cost, technical, and operational perspective? Can the uncertainty associated with the bycatch be described, quantitatively or qualitatively? Are data resulting from an SBRM adequate to assess the fishery amount and the type of bycatch occurring in the fishery, and are the data we collect useful in management of the FMPs?

These are the fisheries that we're going to be going through. The lion share of the SBRMs that we'll deal with today are in Reef Fish and Shrimp, and then Coastal Migratory Pelagics is with the South Atlantic, and so there's some stuff to discuss there. Spiny Lobster, Red Drum, and Coral, we should get through those relatively quickly, mostly because there is very little, federally, that we do for SBRMs with those fisheries. Before I start Reef Fish, any questions on the general what we're asking you to do here, anything of that sort? Great. I will just move on to Reef Fish then.

We have thirty-one species in the Gulf, and there are 837, approximately, federally-permitted commercial vessels, and that's based on 2020, and 1,289 federally-permitted for-hire vessels, based also in 2020. The primary gears are longline, vertical line, and modified buoy gear.

The types of bycatch reporting methodology for commercial vessels are logbooks are required for all vessels, and they must include quantity of all species, the area caught, gear, et cetera. Then there's a supplementary discard data program. If selected, any commercial vessel operator must report the number and average size of fish being discarded by species and the reason for discards. This occurs on 20 percent of each of the commercial vessels each year, and so vessels should be selected once every five years, and only once every five years.

There is the Reef Fish Observer Program, which reports all catch, including protected resources, and that's been approximately 2 percent of trips annually, basically for the last ten or fifteen years.

The Shark Longline Observer Program provides a lot of data on reef fish catch. Although it's not technically part of the reef fish SBRMs, it is important, and so I thought that I would mention it here.

In for-hire vessels, the SBRMs include MRIP, and that includes the Access Point Angler Intercept Survey, the Coastal Household Telephone Survey, and then FES, of course, and so it estimates the catch rates and effort for all captured species, and it doesn't collect information on discards, or rather that one does, and sorry, but I'm getting ahead of myself here, and so it does estimate catch rates based on what's reported by the fishermen.

The Southeast Regional Headboat Survey, they do not collect information on discards, and only on what is reported as kept, and then the Southeast For-Hire Electronic Reporting Program, SEFHIER, which was implemented last year, has mandatory electronic reporting of all catch and effort data, including all discards for all permitted Gulf and South Atlantic for-hire trips.

Then we have private recreational vessels, which are basically estimated using -- Depending on the species, it's either MRFSS, MRIP, CHTS, or FES, and some of those are moving to FES. For instance, lane snapper just moved to FES, and red grouper is on the way, it seems, but most of those are still captured under CHTS or MRFSS.

Again, I am going to just make this reminder that the amount and type of bycatch is summarized in the subsequent slides. However, the numbers are less important than whether our SBRMs are adequate to address the estimated bycatch, and so, again, there can't be -- We're not look at too much bycatch of a certain species here or anything like that, but it's more of are we capturing what we're supposed to be capturing, and I guess are we capturing -- Is the data representing what's actually going on in the fishery, I guess is the best way to say that.

You can see the top ten species by gear type on commercial trips that land reef fish, and red snapper and red grouper are near the top on each of them, and there's also reasons for discards, and you can see, throughout, that, generally, size is a big component of why things are released. For certain fish, there is other regs than out-of-season, and usually other regs is something like they don't have -- For instance, if they don't have any shares available for grouper or snapper, and that would be under other regs.

Also, the reason for discards aren't necessarily spelled out super

easily, and so fishermen may report something different for -- Not legal size is pretty obvious, but, if someone has say an out-of-season fish, they may say other regulations, or they may say -- It's just not definite, and so view those with a little bit skepticism in how they are reported.

Again, the amount of bycatch, and this is on the recreational side, and so you can see headboat, charter, and private. A good thing to look at here is the ratio of discards, because it kind of lets you know the percentages.

For instance, for gag, you can see the percentage is approximately a six-to-one discard ratio for the headboat, and around five-to-one for the charter and nine-to-one for private, and it gets up to gray triggerfish is well above that, where sixteen out of seventeen fish are discarded, or amberjack is three-to-one, or four-to-one, and so that just kind of gives you a view of the data we're getting and how many discards are occurring, and you can see where mutton snapper is the exact opposite, where ninety-five out a hundred are kept.

Okay, and so the importance of bycatch in estimating the fishery, discard mortality estimates are species-dependent, variable, and highly uncertain. Discard mortality correlates with increased depth, seasons associated with warmer temperature, bottom longline gear, and evidence of external barotrauma.

Discard mortality is accounted for in stock assessments, and the accuracy of bycatch estimates are, obviously, fundamental to appropriate management. If not properly managed and accounted for, either form of mortality could potentially reduce stock biomass to unsustainable levels.

The feasibility, and so Review Criteria Number 2 is feasibility from a cost, technical, and operational perspective, and so, for the commercial SBRMs, we have logbooks, which has been a long-term program, and it appears feasibility. Modernization is possible, and people have talked, and the council, I know, is considering, and other councils have already implemented e-logbooks, and that's sort of what we did for SEFHIER. We don't have that in place for commercial yet, but certainly modernization may help with that.

The supplementary discard data program, it is a long-term program, and it appears feasible, and the data utility is questionable, and we'll discuss that a little bit further in the next section, and the Reef Fish Observer Program is also a long-term program, and it's feasible, provided the funding continues, and 2 percent is sort of where it's been, and whether that's adequate is probably

a question for scientists to consider, but that seems to be the amount of funding that we're getting at this point, or that traditionally we've got in this fishery.

Then the longline observer program, since we're not really -- The shark longline, we just kind of use that data, and so we don't really need to consider that too much, although it is important, as I mentioned.

For recreational SBRMs, the for-hire, we have MRIP, which is a long-term program, and it does appear feasible. Then SEFHIER is the new program, where we have the infrastructure in place, and it appears feasible. Funding appears stable at this point, and there's always some question with a new program, but, with as much resources as the council and NMFS have put into getting this program set up, it appears that is going to be a stable, long-term program.

For private, again, we discussed the MRFSS and MRIP, and these are long-term programs, and, recently, they've been updated several times, to try to make the data more appropriate, or more representative, of what we believe we're seeing in the fishery, and it appears to be feasible.

This is a big question, I guess, is the uncertainty of the data resulting from the methodology, and so, for commercial SBRMs, there is high uncertainty with logbooks, with discard CVs often exceeding 100 percent, and the rare species may not be identified, and these are kind of combined, because, really, the discards are in the supplementary discard program, and so these are -- That is why the CVs are high, because they are self-reported, and, when compared to the Reef Fish Observer Program, you find that there are differences in reporting.

Focusing on the supplementary data discard program alone, non-reporting is a big issue, and there is a box on there that you can check that just says "no discards", and, if you check that box, it just basically says no discards for the trip, and then you're in compliance, and it's a very easy way to not report, and better than 50 percent of the trips report no discards, using that check box, which certainly we don't believe to be accurate, and that rate has risen substantially since use of the supplementary discard logbooks began, so that is certainly suspect data.

Also, that data has been analyzed compared to observer data, and even when you disregard the non-reporting trips, generally the discards on the observed trips are considerably higher than reported in the supplementary discard program.

For the observer program, at approximately 2 percent coverage, it's probably less accurate in estimating the capture of rare species, and, again, the observer program indicates that self-reported discard rates are consistently lower than observer-reported rates.

For the recreational SBRMs, they are all self-reported by fishermen for MRIP, and that includes dock-side surveys. For the headboat survey, there is dockside sampling and discard reporting, and it provides a measure to estimate the accuracy of self-reported headboat landings, and then SEFHIER -- We don't really have any data for SEFHIER that we have been able to analyze yet, because the program is so new, and everybody is just getting onboard, but it is expected to improve data on for-hire vessels in the Gulf, and it does collect data on all discards. It is really the only source where we really get data for sea turtles and ESA-listed species on recreational vessels.

For private vessels, we have MRFSS and MRIP for self-reported data for recreational fishermen, including dockside surveys. Those do not occur in Louisiana and Texas. In Louisiana and Texas, estimates are only of landed fish, and they are creel surveys, and so there are no bycatch estimates, because MRFSS or MRIP doesn't occur there.

CHAIRMAN NANCE: Dan, we have a question from Harry Blanchet, please.

MR. LUERS: Sure.

MR. BLANCHET: The Louisiana LA Creel survey actually does provide release harvest estimates, and it does not provide them for all species, but it provides them for all managed species in the federal system.

MR. LUERS: Great. Okay. I did not have that data, and so I will make a note of that, and I will maybe contact you to get more information on that, if that's okay.

MR. BLANCHET: Sure enough.

MR. LUERS: Okay. Great.

CHAIRMAN NANCE: Thank you.

MR. LUERS: All right. Moving on, for Criteria Number 4, how are we using the SBRM data that are collected in this fishery, and

this is kind of standard across all the fisheries, and so you may see this slide repeated several times for each of the fisheries, but the Southeast Fisheries Science Center uses the data in stock assessments, to incorporate bycatch into estimates of total fishing mortality.

The SSC uses the information as they review the status of fisheries and develop ABC recommendations. The council uses the SBRM-derived bycatch information to assess if new management measures are necessary and develop measures and evaluate potential impacts of measures. All aspects of fishery management in the region that have bycatch implications use the data from the SBRMs.

That is the summary of the reef fish SBRMs, and so I thought we would just stop here and just go fishery by fishery and discuss anything -- First of all, answer any questions that you might have about this, and then maybe you guys could discuss -- You all could discuss the adequacy of the SBRMs.

CHAIRMAN NANCE: Does anybody have any questions for Dan at this time? Okay. Dave Griffith, please.

DR. GRIFFITH: Thank you, Mr. Chairman. If you look back, and I guess it's those two tables that you presented that have Reef Fish FMP, and the discards -- So the commercial discards for red snapper are like four-times what the -- Or the recreational are four-times more than the commercial ones, and is that what that says?

MR. LUERS: Yes, and the estimates are that they are far higher in the recreational fishery.

DR. GRIFFITH: Why are they discarding so many in the recreational fishery? They just can't catch them or what?

MR. LUERS: Well, that's a very good question. The effort in the recreational fishery is probably substantially higher than in the commercial vertical line fishery, and so the estimates of discard rate in the vertical line fishery for the commercial fishery and recreational fishery are generally similar.

Actually, because there is so little data that you can -- You get all self-reported data from the recreational fishery, and, from the commercial fishery, you actually get some observed data, and so you kind of have to use -- The Science Center may be able to clarify this a little bit better, someone from the Science Center, but you sort of have to use the data from the commercial observer program to figure out what the recreational fishery is doing, because recreational is all self-reported, versus you have some

manner of validation with the commercial fishery, and so it's largely based on effort. Does that answer your question?

DR. GRIFFITH: Yes, it did. Thanks.

MR. LUERS: Okay.

CHAIRMAN NANCE: Thank you. Rich, please.

DR. WOODWARD: I guess the answer to this question came up a little bit at the end of your last remarks, and so, in terms of the recreational and the for-hire sector, that means you've basically got no validity check on your data at all, and, I mean, have there been any efforts to try to get some validity checks on these self-reported data?

MR. LUERS: There is very little. On the South Atlantic side, apparently the Headboat Observer Program, or the Southeast, the SRHS, the headboat survey, did run -- I am not aware if they still run observers on some of the headboats, and so there was some validation with that. I have heard that it did originally happen, for a few years, in the Gulf as well, but it's been a while. At this point, there's not really -- The only people that run any observer programs in the Gulf and on recreational trips, are the State of Florida runs a few. We do have some data from that, but, federally, there is very little validation that is really available for that.

DR. WOODWARD: All right. Thanks.

CHAIRMAN NANCE: John Mareska, please.

MR. MARESKA: Dan, I was curious, and you indicated that mortality increases with depth, and so is any of the depth information collected in conjunction with this, as well as the size of the fish? Then a second question is, is there any concern about species ID, either lumping or splitting fish, or discards, and so calling a greater amberjack a lesser amberjack, or including a lesser amberjack in with greater amberjack, and have any issues like that been noticed?

MR. LUERS: In answer to your second question first, that is always a concern with self-reported data, and so that adds to the uncertainty in the data, and that's where, with the recreational data, it's probably even less -- You know, we can validate with, for instance, the vertical line fishery. If you get a little bit of observer coverage, you can see what percentage of those fish the fishermen are identifying correctly, but those fishermen have

spent their time at-sea their whole life, and so they are much more likely to probably correctly identify the fish.

The recreational, it's hard to quantify how good they are at identifying, and everyone is going to be different on that, and so that's going to add to the uncertainty with the recreational fishery, for sure, and so that's always something that has to be considered when you try to do estimates of bycatch, especially regarding the recreational fishery.

Now, with regard to depth, we didn't really look at it in this study, and there's quite a few studies that do look at it, and I think I cited a Pulver study, a Jeff Pulver study, from our office about depth, and seasons with warmer water temperatures and that sort of thing, and so that, the depth, along with the soak time, in the bottom longline fishery, is probably a good bit of the reason why discard mortality can be higher in that fishery, or that sector, rather, but does that answer your questions?

MR. MARESKA: Yes. Thank you.

MR. LUERS: Okay.

CHAIRMAN NANCE: John Froeschke, please.

DR. FROESCHKE: I am done.

CHAIRMAN NANCE: I see that now. Sorry. Will Patterson, please.

DR. PATTERSON: Thanks, Jim. This really had to do with the earlier question about the commercial versus recreational discards for red snapper. There is a size limit difference, and so the commercial folks -- The idea is that they would discard fewer, and their release mortality rates are estimated to be higher, but one reason the council went to a lower size limit on the commercial fishery is to try to minimize the number of discards.

The second thing is, for the recreational fishery, which is more substantial in the eastern Gulf of Mexico, they are encountering more smaller fish, and, I mean, Sean Powers mentioned this earlier, and I mentioned it as well, about the size composition of the fish observed during the Great Red Snapper Count was really skewed toward fish less than 500 millimeters and, in Florida, less than 400 millimeters.

MR. LUERS: Those are good points. Thank you.

CHAIRMAN NANCE: Thank you, Will. Dan, that's all the questions.

Why don't you go ahead and go on, please?

MR. LUERS: Okay. Sounds great. Next, we'll go through the Shrimp FMP, and so we have four managed shrimp species of brown, white, pink, and rock shrimp. Currently, there is 1,467 federally-permitted vessels in the Gulf, and the primary gear is trawls.

CHAIRMAN NANCE: Dan, I see one, and it should be brown, pink, white, and royal red.

MR. LUERS: I am sorry. I will have to update that presentation.

CHAIRMAN NANCE: Thank you.

MR. LUERS: With regard to bycatch reporting methodology, we have electronic logbooks, including the cELB, which is required for all vessels, accurate calculation of vessel effort, CPUE at fishing locations, and they must provide the size and number of trawls, the types of bycatch reduction devices, and turtle excluder devices.

The Gulf of Mexico Shrimp Observer Program, observers report annually on all catch, including protected species, and so approximately 2.5 percent of trips from 2015 to -- This was actually from 2011 through 2015 data, but it's been pretty consistent, and so approximately 2.5 percent of the trips annually.

Then the other programs, and so the Science Center cooperates with the states to monitor fishing effort. NMFS OLE maintains spreadsheets with boarding details, and they work with the Sea Turtle Salvage and Stranding Network to maintain a database of sea turtle strandings in the Gulf. They use that, along with observer data and other data, to monitor sea turtle mortalities from fishing interactions.

As you can see, going through the fisheries, we have -- You can see what the percentages are of targeted species versus non-targeted species, and so, in the Gulf penaeid mandatory observer coverage, you can see that the combined brown, white, rock shrimp fishery, and pink shrimp fishery, approximates about 30 percent of all species caught in the mandatory rock shrimp coverage, and it's about -- Again, that's probably closer to 40 percent, and, in the mandatory skimmer coverage, it's a little bit over 40 percent. Generally, catch in these fisheries is less than 50 percent, substantially less than 50 percent.

The importance of bycatch in estimating mortality is shrimp trawl gear can affect the abundance of species that are targeted by other

fisheries, for instance red snapper, and little is known about the status of finfish and invertebrate species that are present in shrimp trawl bycatch in the greatest numbers, because they aren't generally targeted in any fisheries, and I will just scroll back up, so that you can see that unspecified fish are basically anything that is not managed and that, usually, they don't bother to identify.

Then you have Atlantic croaker is the next highest one, and so nothing that is really targeted. When you get down to the actual important species in our fisheries, you get red snapper at about 0.3 percent in the penaeid shrimp fishery, and then Spanish mackerel and red drum and lane snapper are 0.2 percent, and so they're not a high percentage of the catch. Most of the fish that are caught in those trawls are commercially, at least, unimportant.

The feasibility of the methodology, electronic logbooks, they are currently being modified, and the program is expected to be maintained, but I think you're all aware of all the discussions going on around the cELB, but the important thing to remember is that the program is likely to continue in some manner.

The observer program also is expected to continue at approximate current coverage levels, which is always an assumption, but it's been traditionally around the 2.5 percent mark, and so that's probably around the same coverage level. Then the other programs are also expected to continue, and so that's where we are with that.

The uncertainty, and so the Gulf shrimp observer program is the best method to estimate discard rates for species. Generally, with this, they have low CVs, less than 0.2, associated with bycatch species, for almost all species. With the logbook data, there are some biases, like inaccurate reporting of bycatch, protected species, low compliance rates, and it's very useful for effort info, and info on the area, info on capture of rare species, and so using the observer program, combined with the logbook data, is the best method overall for estimating bycatch.

Then, once again, this is very similar in how the data are used, and they're used in stock assessments, for total mortality, to develop OFL and ABC recommendations, and then assess if new management measures are necessary and develop measures and evaluate the potential impacts of the measures that have been implemented. That's what we have for Shrimp, and does anyone have any questions regarding the shrimp fishery?

CHAIRMAN NANCE: If you have any questions for Dan, please raise

your hand, and Bernie will let me know. Harry, please.

MR. BLANCHET: Thank you. I have a couple. On your page 20, you have a list, and it says arthropod, other, and seatrout, and so, looking at the Scott Denton et al. paper, this is a more extensive list of species that are recorded, and seatrout -- It has two entries, and it has one says seatrout Cynoscion spp. Later on, it has another one that says spotted seatrout, Cynoscion nebulosus, and this is the -- The nebulosus is probably the most highly-targeted species in the inshore fishery in the Gulf of Mexico, and every state, I believe, has a state-based assessment on spotted seatrout.

It's unclear, to me, whether those two groups, the Cynoscion spp and the C nebulosus, are some combination of nebulosus nothus and arenarius, or is one purely nothus and arenarius and the other nebulosus, and are they unique to each other? I don’t know which is the case, but certainly, if we have consistent information on bycatch of spotted seatrout, that would be useful in many state assessments for management, and the same -- While I am ranting, the other group is you’ve got the non-penaeid crustaceans.

Blue crab is one of the largest commercial fisheries in the Gulf of Mexico, and I think that not having a characterization of blue crab, as opposed to having it as part of this non-penaeid crustacean group, would be very important for people trying to do blue crab assessments across the Gulf of Mexico at a state level. Thank you.

MR. LUERS: Okay. Those are good points, and I certainly didn’t pick up on the differences in the seatrout in the Scott Denton et al. paper, and so I will have to reach out to them, because I don’t know the answer to that. I don’t know how they characterized that at all, and so I will have to reach out to the authors there and see if I can find some information.

Likewise, with the blue crab, I am not sure if that is a grouping that the Scott Denton group came up with or if they are reported that way, but, yes, I would think that probably there would be -- That people would report -- That they would have them report them as blue crab, when possible, and so I can look into those two things.

MR. BLANCHET: I have not seen that in any of the reports that I have looked at from the Southeast Fisheries Science Center on that discard, which is -- The same thing with the seatrout question, and I see seatrout, but I have seen nebulosus in any way that I could say that has been consistently reported or inconsistently

reported or not reported, and so, essentially, it is not useful in any stock assessment, unless we know what the characteristics of the observers' reporting is on that species, and I would strongly encourage inclusion of both a separate category for nebulosus and a separate category for blue crab in future shrimp trawl shrimp bycatch surveys.

MR. LUERS: Okay. I definitely agree, and, I mean, I see what you're saying, and I am trying to figure out if this is -- First of all, I don't know which way they report it, and so that's something I will have to look into, but, for recommendations, we should probably -- The purpose of this, this presentation, largely, is to say if we're capturing the discards that we need adequately.

If there aren't -- If we aren't getting the data we need, then I guess that is something that needs to be addressed through some sort of action. It also can be just a recommendation, but that's kind of -- That's sort of the point of this, and so I guess I'm asking, and do we want this to be addressed, or do we want it to be a recommendation, or --

CHAIRMAN NANCE: I think, from Harry's question and things like that, I think it's a matter of -- Right now, the observer program collects data on federally-managed species, and so a lot of the other species are not going to be characterized in a given trawl and those types of things, but certainly, if there are species that are needed to be looked at, I think it would be good to, from a state perspective, let the Center know what those species are, so that they can be looked at in detail, if that's possible. It looks like John has a response from the Center.

DR. WALTER: Thanks, and thanks, Dan, for this presentation, and I didn't mean for you to be on the spot for some of the data collection programs that you don't run that are done out of the Center, and I think, in this case, because we are focusing on the federally-managed species, not all of the other species have gotten the attention that may be needed for other management forums, and so what I would say is that that is a request that could be made, to try to partition out those species to species, if they're needed, and to prioritize ones that might be a higher priority for say Gulf States Fisheries Commission or the individual states.

To the extent that that can be accommodated in the observer program, we can try to do that. However, one of the -- Most of the funding is focused on the federally-managed species, but, unfortunately, even then, as you see, the sample coverage is often fairly sparse for a lot of the surveys, and that's just a limitation of what we can cover, but, if a request to focus on

other ones, other priority ones, was made, then we could try to accommodate that, and we take the feedback. Thanks.

CHAIRMAN NANCE: Thank you, John. Trevor.

MR. MONCRIEF: Thank you, Mr. Chair. I certainly can see where Harry is coming from, and, I mean, I would imagine those would be arenarius or nothus, but the nebulosus stuff does trigger my mind a little bit with the state-managed stuff, but my question was on a federally-managed species, and I was going to ask about wenchman snapper, and I kind of halfway expected that to pop up on the other important species section here, given that there was a midwater snapper closure this year, and I think, through conversations on the council floor, it said they were coming from trawls, and can you speak a little bit to that? Are they not listed on here simply because they aren't bycatch, because they're a targeted species, or anything like that, and do you mind just saying a couple of words?

MR. LUERS: I would say, if they didn't make the list of important species, it's probably because they didn't comprise up to the 0.2 percent, which was where I kind of cut it off for lane snapper. I do have that data somewhere, and I can get it for you, but, off the top of my head, I couldn't tell you exactly why they weren't included, except that they probably didn't comprise quite as high of a percentage as the other four species that are listed under other important species, because there was some bycatch of many managed species, certainly, but these were the four that were the highest percentages, and those were relatively low as well.

MR. MONCRIEF: Okay. Thank you for that.

CHAIRMAN NANCE: Thank you. Joshua Kilborn, please.

DR. KILBORN: I was wondering, and is it possible to get any more resolution on the unspecified fish, considering they take up such a large proportion of those discards?

MR. LUERS: I would probably defer to the Science Center on that one as well, and I'm not sure if there is any information on that, if anyone is out there listening who could answer that.

CHAIRMAN NANCE: Frank, do you have a response on that or anything?

MR. FRANK HELIES: Thanks, Jim. No, and I was speaking to the wenchman issue, and I looked up the Scott Denton, and it's 19.3 kilograms total, out of a four-million-plus kilograms, and so it seems to be a very small amount, at least in the observed data.

CHAIRMAN NANCE: You know, I think, in the bycatch from the shrimp trawl fishery, I think there are, if I remember correctly, 252 different species that are -- That have the opportunity to be captured, and some of those once or twice in their lifetime, and others very frequently, and so this fish unspecified -- Sometimes the observer isn't able to collect all the information from every single species that comes aboard, and so sometimes finfish, as a group, is lumped together and just put into a fish unspecified category.

Josh, on those cases, those fish wouldn't be identified down to species, but, during those trips, if they're federally managed, like snapper, Spanish mackerel, red drum, those types of things, they would be pulled out and looked at in entirety on those trips. Okay. Doug Gregory.

MR. GREGORY: I just wanted to point out that, for the last two years, wenchman have been a target species, and I think by trawls, and it's by young fishermen who are looking for something to catch that is not under an ITQ, and it has gotten the council's attention and stuff, but I'm sure some wenchman are caught as bycatch in the shrimp fishery as well, but not many.

CHAIRMAN NANCE: Thank you, Doug. It looks like that's all the questions we have. We appreciate those questions. Thank you. Dan, you're certainly welcome to move on now.

MR. LUERS: All right. Thank you very much.

CHAIRMAN NANCE: Harry, did you have another question?

MR. BLANCHET: I did, and it was basically -- To follow-up on my request, what is the appropriate method by which to get a consensus, or a review, or a request, to NOAA to do data collection, if at all possible, for some of those species that we previously discussed that have state management issues? Would it be something through the Gulf States SEAMAP Committee, or would it be through some other venue, or is it more appropriate to do a motion here on the SSC?

CHAIRMAN NANCE: We could certainly do a motion on the SSC, and I wouldn't have a problem with that, but certainly, I think, from an individual -- John, please correct me if I'm in error here, John Walter, but I think a request from the state to Center -- If you have assessments that you need data on, and you see a program that may be collecting data, or you may want to have that data collected, and I think a state-to-Center correspondence probably

would be appropriate but, John.

DR. WALTER: Thanks, and I will chime-in there, and one of the things that we instituted was a formal request memo process, and I know we rolled that out to Dave Donaldson at Gulf States, and so Dave is quite aware of that and how they can make a formal request for data or for something that's a need, like this, and so we would most definitely pay attention to it.

Obviously, a state could do that, but, if it's a Gulf States want, and it's one that crosses many of the states needs, then I think that that would be appropriate. The council could do that, and the council uses that process quite often, when they have needs, and, in this case, I think if the key user group is Gulf States, have it come from Gulf States. If the key user group is a state, please have the state send us the request, and we'll try to accommodate it.

CHAIRMAN NANCE: Thank you, John. Thank you very much. Did that answer your question, Harry?

MR. BLANCHET: Yes, it did, and I was just wanting it to be something more than just a comment that got lost in the ether.

CHAIRMAN NANCE: Absolutely. Thank you so much. Benny.

DR. GALLAWAY: I didn't have a question, and I should note that, Jim, there is a study where the species are lumped together in a big pile and just weighed, and those are being characterized in an ongoing study, at present.

CHAIRMAN NANCE: Okay. Good. Thank you for that. Dan, go ahead and go on with your presentation, please.

MR. LUERS: Okay. Sounds great. Moving on to Coastal Migratory Pelagics, which are jointly managed with the South Atlantic, and we're talking about king mackerel, Spanish mackerel, and cobia. The primary gears are trolling, handline, and gillnet.

For bycatch reporting, they have logbooks, which are required for all vessels, the same as the reef fish. The supplementary discard program, also the same as the reef fish, where 20 percent report each year, and everyone over five years. The Southeast gillnet observer program covers all anchored, strike, or drift gillnet fishing, regardless of species, year-round in the Gulf.

Then, recreationally, charter/headboat, the same things as the reef fish, and we have APAIS, CHTS, and FES, the Southeast Regional

Headboat Survey, and then SEFHIER, which was implemented. For private anglers, we have MRIP and then LA Creel and Texas. The LA Creel, as we mentioned earlier, does have some bycatch reporting, and so we'll need to update that, but we'll get the details for that for the council meeting, for sure.

Characteristics of bycatch, this fishery is characterized by low discards. As you can see in the gillnet, it's largely unmanaged species, including American shad and unclassified sharks, grass porgy, sea catfish, things like that. In the handline, it would be red snapper, king mackerel, and Spanish mackerel, and so more managed species, but still low numbers, and then, for trolling, king mackerel, crevalle, and red snapper, but the numbers are pretty low for all of the species.

Recreationally, the numbers are higher, and so the top ten species with discards for each type, and red snapper is at the top for headboat and charter, and then gray triggerfish for both of those, and so you can see the top ones are pretty similar in the headboats and the charter vessels. Then, in the private sector, the spotted seatrout discards outnumber everything, followed by ladyfish and Spanish mackerel, and then red snapper, which is a little bit farther down the list, but the numbers are, you can see, substantially higher for private than for the other method.

The bycatch mortality rates vary, from about 5 percent for cobia to 100 percent, approximately, for the king mackerel gillnet, and so the feasibility -- Are these feasible, the SBRMs, and so, again, the logbook is a long-term program, and it appears feasible, and modernization is possible.

The same qualifiers with the supplementary data discard program, and it's a long-term program that appears feasible, and the utility is somewhat questionable. The Southeast observer program, again, it's long term, and it does appear feasible. Then, with the recreational, the programs are the same as the reef fish, and also for private anglers, and it's just MRIP, and so all of these appear to be feasible, based on they are similar to what they were previously, except for SEFHIER, which has a lot of backing behind it.

The uncertainty of the data, the logbooks are, again -- They have a high uncertainty, and protected species are potentially not reported, and, again, with supplementary data discard, and this is a big issue, and it's actually a bigger issue in the South Atlantic than in the Gulf, and so, with the CMP trips, it's likely greater than it is for reef fish, the non-reporting issue. The gillnet observer program does give accurate estimates of the bycatch for

the gillnet fishery.

For recreational, everything is self-reported, and the Southeast Regional Headboat Survey has dockside sampling and discard reporting, but, once again, that is also self-reported, and SEFHIER data will hopefully improve on the accuracy of the data, by being more real-time, but, again, it's self-reported, and the same thing for private as with the reef fish, the same surveys.

Again, I am not going to repeat this slide, but they are used in management, and the data collected are used in management in the same way. That's about all I have for that, and do we have any questions on coastal migratory pelagics?

CHAIRMAN NANCE: Jason, please.

MR. ADRIANCE: Thank you, Mr. Chair. Thank you, Dan. This refers to your page 28, that table of the commercial discards, and I understand they are low, but is there any idea of if those discards there of things that could enter commerce, or is that just regulatory discards in nature, or is there any idea if that's the case or not? Thanks.

MR. LUERS: That is a good question, and I don't have that data available right now, and I would have to look that up for you. I don't want to venture a guess, because I couldn't tell you for sure.

CHAIRMAN NANCE: Okay. Any other questions? Seeing none, Dan, we can go ahead. Thank you.

MR. LUERS: All right, and so, moving on, these last fisheries should go relatively quickly, starting with the spiny lobster fishery, which is also jointly managed with the South Atlantic, and the primary gear are traps and diving, and there is as small component with hoop nets and bull nets.

For commercial fishing, there is logbooks that are -- All of the lobster fishery occurs pretty much in Florida, and so it is monitored by FWC, and then any sea turtle strandings that happen, getting entangled with ropes or lines that are attached to the -- For the buoy lines, and the Sea Turtle Stranding and Salvage Network keeps the database of those strandings.

FWC also monitors bycatch of spiny lobsters in the recreational vessels, and there is low discards, and so pretty much the data on discards comes from literature, and so there is estimated to be low discards, 8 to 15 percent, and most of the finfish caught

commercially in spiny lobster traps are juveniles that escape within forty-eight hours.

A big problem with the lobster fishery is ghost fishing, and so discarded, lost, or abandoned traps that keep fishing. 8 percent of traps are lost annually, estimated, in years without a major storm, and so those traps are estimated to keep fishing for about a year before they are required to have breakaway gear, and so the lobsters can get out, but they still fish for about a year. Traps estimated -- The estimated loss each year is about 640,000, plus or minus 75,000, dead lobster. After two weeks in a trap, a lobster's survivability drops dramatically, and so, if they're in there for two weeks, they are pretty much estimated to die.

The importance of bycatch mortality in recreationally-important finfish is negligible, and the impacts of ghost fishing must be included in management decisions.

Are the SBRMs implemented feasible? For commercial, we have the logbooks, and recreational, and both commercial and recreational is really operated by FWC.

The uncertainty of the data, the uncertainty has been evaluated through analyses associated with regulatory and FMP amendments implementing the Spiny Lobster FMP, and bycatch levels for both sectors are low. How are the data used? It's largely the same way they are used in other fisheries, and they assess if new management measures are necessary and develop measures and evaluate the potential impacts of the measures. Any questions on spiny lobster?

DR. GRIFFITH: Can I ask -- Are those ghost traps -- If people find those ghost traps, do they pick them up, or are they just lost? I mean, where I come from, it's illegal to pick up crab traps, for example, and so I was curious about that.

MR. LUERS: I didn't find any literature on picking them up, but I -- Having spent enough time in the Florida Keys, messing with someone else's trap will get you in a lot of trouble, and it's illegal, and so I think there would be a lot of reluctance to someone pulling up someone's trap, even if it didn't have a buoy attached to it.

MR. RINDONE: Mr. Chair?

CHAIRMAN NANCE: Thank you. I was muted for a while, and so I was not able to respond, but, anyway, go ahead, Ryan.

MR. RINDONE: Thank you, Mr. Chair. You're right, Dr. Griffith, and Dan, that messing with someone else's trap can be interpreted as felony trap theft, if you're taking things out of it, and especially the commercial traps, and they all have tags on them, and so, if you find a ghost trap, or an abandoned trap, you're supposed to report it, and the state keeps track of those, to some degree, and I don't know if he still does it, but Kyle Miller with FWC used to operate a group that went out and tried to find as many of these as possible, and this is a continuing annual effort to try to remove these derelict, or abandoned, traps, but reporting does a great deal to increase the number of traps that are not being monitored and that are removed.

CHAIRMAN NANCE: Thank you, Ryan. Doug, you had a question, also?

MR. GREGORY: I have not heard of logbooks being used in the lobster fishery, and that might be worth double-checking, and the state does authorize special marine debris collections to bring in trap material, but, like Ryan said, and you said, it's illegal to mess with a trap even outside the season, unless you have that special permission, but I think logbooks -- You ought to research that. I know they fill out trip tickets, when they come to the dock and unload.

MR. RINDONE: There are no logbooks for the lobster fishery.

MR. GREGORY: I didn't think so, but I'm not that close to it anymore.

MR. RINDONE: Messing with the traps is a felony, and that includes any unauthorized cleanup, and so, if you're part of one of the cleanup groups that is headed up by FWC, which they do take volunteers for, then you're part of that sanctioned trap-removal activity, but, outside of that, thou shalt not touch, and the traps are all made out of wood, and so they are designed to fall apart with time, and, as many snorkelers and divers will tell you, there is plenty of degrading remnants of old lobster traps to be found scattered about.

CHAIRMAN NANCE: Thank you for those comments. Any other comments? Okay, Dan, you can go ahead. Thank you.

MR. LUERS: I will change the logbook, and I probably just mischaracterized what it said when I was researching that, and so I will get that updated for the next presentation.

Next, we're going into the Red Drum FMP, and so there is no active federal fishery in the Gulf of Mexico. Red drum may not be

harvested in or from the Gulf Exclusive Economic Zone. Red drum that are captured in the EEZ must be released immediately, with as little harm done as possible, and so, again, there is no allowable catch and no federal fishery for red drum in the Gulf.

Red drum may be captured incidentally in other fisheries, but the bycatch would be captured under the SBRMs in place for that fishery, and so, in other words, there is no actual reporting of SBRMs in the red drum fishery, because any red drum that are captured -- Since it's illegal to target them, they would actually be captured under the fishery for whatever you were targeting.

The feasibility methodology for that is, since there is no allowable catch, it really doesn't matter, and uncertainty -- There is no uncertainty, because there is no allowable catch, and methodology, and it's the same thing for all of them, and so any questions on red drum? Any questions on how that's determined that red drum is covered under other fisheries, rather than having their own real SBRMs?

There are actually a substantial number of -- I wouldn't say substantial, but there are a number of red drum that are captured and reported as kept is federal waters, largely from recreational fishermen, and I think you will see that, and, if you went through the report, you may have had that question, of why are they catching red drum, if they're not legal, and that's a very good question, but they aren't catching them legally, I guess is the answer, and so, anyway, if that was a question that came across your mind.

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

MR. BLANCHET: Who would have thunk it? Harry had to stick his hand up.

CHAIRMAN NANCE: I'm glad you do, Harry.

MR. BLANCHET: There is an alternative explanation other than illegal harvest of red drum in the federal waters, and that is that, when a recreational trip is surveyed, either through MRIP or through LA Creel, the request is where was the majority of the harvest from, and there is only one zone that is allowed, and essentially, you're not going to say I got some of this in state waters and some of it in federal waters, and the question is going to be where was most of it from.

If someone is on a trip, and they go fish for red snapper, and, on the way back in, they fish red drum in state waters, that's a

perfectly legal red drum from state waters, but it will be recorded on that survey as being coming from federal waters, if that's where the majority of the effort and harvest came from for that trip, and so that's -- There is going to have to be some sort of, how do you say it, Kentucky windage on some of those, just because you don't have the precision of where was that hook placed, in which water was that hook placed, each time it was cast from the boat.

MR. LUERS: Okay. Thank you. That makes a lot of sense.

CHAIRMAN NANCE: Thank you, Harry. No other questions, Dan.

MR. LUERS: Okay. Great. Moving on to the Coral Reef FMP, no black coral or stony coral harvest is allowed in the Gulf of Mexico. Octocoral off of the Florida coast and the EEZ bordering Florida, which is managed by Florida.

Federally, black coral, as we mentioned on the last slide, and all of this is prohibited, except for the octocorals, which is managed by Florida, and any coral that is captured in the EEZ must be released immediately, with as little harm done to the animal as possible, and the feasibility, the review criteria, or all the other criteria are basically not applicable, because harvest isn't allowed or managed by us federally. Any questions on that?

CHAIRMAN NANCE: It doesn't look like any.

MR. LUERS: Okay. Great. That's about it, and so, basically, our final steps are the IPT has kind of done the final review, and we will see if there are any recommendations from you all before the briefing book deadline tomorrow for the council meeting, and so we'll see how that goes, but the council needs to finalize the document or decide on any implementing measures at the next meeting, and then NMFS will do a determination, and then the NMFS determination is due to Headquarters on February 21 of this year. Any other questions or --

CHAIRMAN NANCE: Thank you very much for that presentation. It was excellent.

MR. LUERS: Thank you very much.

CHAIRMAN NANCE: Let's go ahead and -- Bernie, come back and grab your screen, I guess, and do we have any recommendations from the SSC to the council? This is our opportunity to let the council know any concerns or any credits or those types of things that we have for this bycatch plan. Harry, please.

MR. BLANCHET: I don't know if it's appropriate to do a motion regarding the inclusion of species or a request for the Science Center to include species of significance to states in their -- Or if that's more something that we should be doing in the -- Go ahead.

CHAIRMAN NANCE: I don't think it would hurt, and I think John outlined the methodologies to do that, but it probably wouldn't hurt, from an SSC perspective, to make a motion, just to reiterate that fact, that it is, from our perspective on the SSC, an issue and those types of things, if you would like to make a motion, Harry.

MR. BLANCHET: Okay. This is -- I am not nearly as practiced at this as Roy or Bob Gill are, and so please feel free to massacre it after I try this out. **The SSC requests that the Southeast Fisheries Science Center consider the inclusion of species under -- Include species managed by the states, such as blue crab, for inclusion as a specific group within the appropriate observer program.**

CHAIRMAN NANCE: Jim Tolan, please.

DR. TOLAN: I will certainly support this, once he gets a second, but I think Harry brought up a really good point about spotted seatrout, in that -- What really struck me was the numbers on the coastal migratory pelagics, and so these are private trips taken outside the bays and estuaries, and the numbers of spotted seatrout that were reported in this presentation, and, again, it was a very good presentation, and I thank you for it, were astounding, and so I can't see that many spotted seatrout being taken when you're not really in the bays and estuaries, because they're not that far offshore, and so that kind of struck me, but I will certainly support this motion.

CHAIRMAN NANCE: Do we have a second for the motion?

MR. MARESKA: I will second it.

CHAIRMAN NANCE: Thank you, John. It's open for discussion, please.

MR. BLANCHET: It must be getting late in the meeting.

CHAIRMAN NANCE: I think it certainly is, and so let me read the motion. Will Patterson, please.

DR. PATTERSON: I am just having a hard time following what the

motion is saying, especially that last part, and maybe that needs to be clarified a bit.

CHAIRMAN NANCE: Let's see if we can fix this. The SSC requests that the Southeast Fisheries Science Center consider the inclusion of species managed by the states, such as blue crab, and other such species --

MR. BLANCHET: Other such species as a specific group.

CHAIRMAN NANCE: No, because I think what will happen is then you're going to say that we're going to lump all of those together.

MR. BLANCHET: As specific groups?

CHAIRMAN NANCE: Well, as -- Species groups or something.

MR. BLANCHET: Such species, particularly?

CHAIRMAN NANCE: Well, let's just kind of -- Luke, do you have a way to -- A good edit in mind here, or a question?

DR. FAIRBANKS: I don't think I have the solution, and I think my question was similar, in the sense that I am a little confused by the language, and so I was just going to let you all work through this.

CHAIRMAN NANCE: Okay. Basically, what we're trying to say is the SSC requests the Southeast Fisheries Science Center to consider the inclusion of species managed by the states, and consider the collection of data -- Consider the collection of data on specific species managed by the states. Consider the collection of data on specific species managed by the states be added to the appropriate observer program data collection -- The appropriate observer data programs. Does that help it?

So it would read: The SSC requests the Southeast Fisheries Science Center consider the collection of data on specific species managed by the states be added to the observer data programs.

MR. BLANCHET: That works for me.

CHAIRMAN NANCE: Okay. Luke and Will, does that help?

DR. FAIRBANKS: I guess maybe I misunderstood, but the word that is throwing me a little bit is "specific", and is that -- Does the word "specific" -- Is that us suggesting that the SEFSC kind of determines which species they would like to specifically analyze,

or do we mean specifically those species just managed by the states, or maybe I am misunderstanding.

CHAIRMAN NANCE: Specifically those species managed by the states. Specific species managed by the states, and maybe, in parentheses, such as blue crab, spotted seatrout, et cetera, parentheses, be added to the observer data collection program. Does that help, Luke?

DR. FAIRBANKS: Yes, that does, and I think I was just misreading it, just because of the placement of some of the words, but that clarifies it for me, I think.

CHAIRMAN NANCE: Okay. Will.

DR. PATTERSON: Are we talking about bycatch data here? Is that what is --

CHAIRMAN NANCE: Yes, it is. It is bycatch data, and that's correct.

DR. PATTERSON: So the collection of bycatch data to be added to the observer data program, and does that -- What we just saw, the observer -- There is more than one observer data program, and they are collecting data on even state-managed species, and we raised some concerns about whether those fish were showing up in appropriate places in appropriate numbers, or expected numbers, and so I don't know, also, what it means here to say "to be added to the observer data program".

CHAIRMAN NANCE: Probably to be added to the data collection protocols for the observer program, because I guess, Will, what we're asking is that they add the -- Right now, the observers are not specifically looking for species that are managed by the states, for some of the programs, and so, in order for that to happen, those species would have to be added to the observer protocols for data collection.

DR. PATTERSON: Okay, but there's not just one observer data program, and there's not just one observer program, and you have the shrimp observers, and you have the --

CHAIRMAN NANCE: Right.

DR. PATTERSON: So what are we --

CHAIRMAN NANCE: Probably added to the appropriate observer data program. I mean, blue crab, obviously, are not going to be in the

longline fishery, but they would be in the shrimp trawl program and those types of things, and so the species that are managed by the states that could be caught in a fishery with that observer program would be where that would be added. John.

DR. FROESCHKE: I think you got it, and I was just going to suggest, just to try to move this along, that to consider the collection of species-specific data on the high-profile species managed by the states, because that's really what you want, is like the trout, and you want them in a higher taxonomic resolution than what they're currently doing.

CHAIRMAN NANCE: That's correct. Be added to the appropriate --

DR. PATTERSON: So now you need to say what are the high-profile species.

CHAIRMAN NANCE: Yes. Well, I would just put "such as blue crab and spotted seatrout", and I am sure there is -- Depending on the state, there is going to be others, for sure. Trevor.

MR. MONCRIEF: I think mostly the changes cover what my questions were, but I think having the list there, and the two that got brought up were blue crab and spotted seatrout, and I think that kind of -- Those are two high-profile ones, and certainly, if there is any other ones that show up, I think they will list them, but those two are the big ones that stood out to me, and I think Harry pointed those out correctly.

CHAIRMAN NANCE: Okay. Thank you. John Mareska, please.

MR. MARESKA: I guess I was having trouble with the "observer data program", and I was just wondering if it needed to be more general, as a "bycatch reporting program".

CHAIRMAN NANCE: Okay.

MR. MARESKA: This request is specific, I thought, to the shrimp fishery.

CHAIRMAN NANCE: Well, it kind of went to that, didn't it, the blue crab and spotted seatrout and stuff, but I think that could be added to the appropriate bycatch data collection program.

MR. MARESKA: The questions are directed at Harry, and so he drafted this motion, and I'm just trying to figure out exactly what he's trying -- I think I know what he's trying to drill down to, and I'm just trying to get more specific with it, because it

was confusing, and it's getting more confusing to me.

CHAIRMAN NANCE: Well, that's not good. Go ahead and take a look at this and make any word changes you wish to do.

MR. BLANCHET: I think "high-profile" -- I get where John is coming from on that. However, what is high-profile for one may or may not be for someone else, and I mean even from the same state, and I know some folks around here who are serious, hard-core tarpon fishermen, but I don't know that tarpon in Louisiana would be something that would be occurring in any of the fisheries in --

CHAIRMAN NANCE: I think the key is it's high-profile in the fact that it's the state, and it's not individuals, and every individual, like you're saying, has their own list, but it would be a request by the state to be able to collect this data.

MR. BLANCHET: Yes, and, I mean, the states, at least the ones that I am familiar with, have got state-based assessments, where these data would be set into, or could be set into, and so I would start off by saying those species where states have assessments that could use that data, and I don't know, and maybe strike "specific high-profile" and say "species assessed by the states".

CHAIRMAN NANCE: Okay. So take out "high-profile".

MR. BLANCHET: Take out "high-profile", and take out "specific".

CHAIRMAN NANCE: Then, instead of "managed" --

MR. BLANCHET: Take out "managed" and put "assessed".

CHAIRMAN NANCE: "Assessed by". Yes. I think the other one -- I think John had the point of appropriate bycatch -- Instead of "observer", "bycatch", because some of these are logbooks and things, but go ahead and just change "observer" to "bycatch". Then put, after, "data collection".

MR. BLANCHET: Yes.

CHAIRMAN NANCE: Okay.

MR. BLANCHET: That works for me.

CHAIRMAN NANCE: Josh, please.

MR. BLANCHET: It will probably fail.

DR. KILBORN: Thank you. I was going to make a comment that the observer program should be the bycatch reporting program, and then I am still a little unsure about this "species assessed by the states" portion, and is the intent to get all species that are managed by the states and not managed by the federal entity, and so like such as blue crab and seatrout and things like that, and so is it -- I mean, I think it would be useful to get literally everything that the states are managing, but the feds are not, included in here, and I am not sure that the way it's written would do that.

CHAIRMAN NANCE: Let me ask, Josh, and are there species that are managed by the state, but there is no assessment created for that?

DR. KILBORN: I don't know. I doubt it. Well, actually -- I don't know. I don't know the answer that.

CHAIRMAN NANCE: I know that, from most of these programs that Dan talked about today, they were federally managed, and so, right now, they are keyed-in on the federally-managed species, and so what this motion is trying to do is to allow for those federally-managed bycatch data collection programs to also collect data on species that are assessed by the states, so that they can be able to get data for their specific management in each of the different states.

DR. KILBORN: But do we want like everything, or, like we said before, just the high-profile stuff?

CHAIRMAN NANCE: I think what happens is, when we say "species assessed by the states", that's probably just going to be those high-profile species, in my mind.

DR. KILBORN: Okay.

CHAIRMAN NANCE: Trevor, please.

MR. MONCRIEF: I was just going to highlight that there are species that are managed that aren't assessed, but I understand Josh's point, and I think this is a good start, and I support this motion, and I think it's a good -- I mean, you know, it's a question worth asking, and, if it doesn't go through, then probably we should try to go the other route, with a Gulf States request and all that, because, to me, I think this question is worth answering.

CHAIRMAN NANCE: Okay. Thank you. Paul.

DR. MICKLE: Thank you, Mr. Chair. **I just want to introduce a**

secondary motion, and the only intent is just to clean it up and maybe fix the species discussion issue.

CHAIRMAN NANCE: Okay, and so a substitute motion.

DR. MICKLE: Yes, sir.

CHAIRMAN NANCE: Okay.

DR. MICKLE: While she is bringing it up, I will just explain. I think I worded it as species identified by the Gulf States Marine Fisheries Commission TCC Data Management Sub-Committee, and all the states, I think, are present within that sub-committee, and all the states will have a seat at the table to tell NOAA what's important, and they know a whole lot better than we do, and there is only partial representation from the states at this meeting currently, and so it's just a better way to do it. They can dive in the weeds, and I think that language covers some of the insecurities about the motion mentioned by some of the folks, including the Southeastern Science Center. Thank you.

CHAIRMAN NANCE: Okay. Thank you. Do we have a second for this substitute motion?

MR. MARESKA: I will second it.

CHAIRMAN NANCE: Okay. Thank you. Paul, thanks for cleaning this up.

SSC MEMBER: I think you need an apostrophe after "states" in that substitute motion.

CHAIRMAN NANCE: Okay. To that, Harry.

MR. BLANCHET: Yes, I'm good with that. I was addressing the original motion, and it got resolved.

CHAIRMAN NANCE: Okay. Perfect. Any more discussion on this motion? Let me read it. **The substitute motion is the SSC requests the Southeast Fisheries Science Center consider the collection of bycatch data on specific states' managed species identified by the Gulf States Marine Fisheries Commission TCC Data Management Sub-Committee be added to the appropriate bycatch data programs. Do we have any opposition to this motion? Hearing none, the motion carries without opposition.** Any other input for the bycatch data collection programs? Richard, please.

DR. WOODWARD: I want to just come back to my concerns about the

validity and the lack of data to validate the estimates of bycatch from recreational fishermen, and I don't know whether there is anything that could be done or what might be recommended, but it seems to me like that is a pretty severe data hole that is remaining, and it should perhaps receive some attention.

CHAIRMAN NANCE: Do you have a specific motion that would address that concern?

DR. WOODWARD: No, I don't, and I don't know how the right way is to proceed on that, but it's a concern that I have, and I don't have enough experience on this committee or the processes that are followed to really know what form that might take. Sorry.

CHAIRMAN NANCE: Okay. No, that's fine. Thank you, Richard. I appreciate that comment, but it certainly is a concern, for sure. Josh.

DR. KILBORN: I have a different question, and so, if people want to address that first, we can circle back around to what I wanted to talk about it.

CHAIRMAN NANCE: It didn't sound like it, but go ahead and do this one, and we can come back, if we need to.

DR. KILBORN: Okay, and so I am just curious, and is it feasible, at all, to incorporate life stage for any of these discard species, because I think it would be really useful to know whether or not we're capturing juveniles and things like that, particularly in the shrimp trawl fishery.

CHAIRMAN NANCE: Well, the shrimp trawl fishery, for the species that data are collected on, they do size and things like that and everything, and so it's a --

DR. KILBORN: I guess I am more speaking about those generalized fish that are just all lumped together as just finfish in the shrimp fishery, but just, in general, across all the different fisheries, I didn't -- Maybe it was mentioned and I just missed it, but I didn't get a sense for whether or not we were talking about adult discards or juvenile discards or all, and I'm assuming it's just everything.

CHAIRMAN NANCE: From my experience, in the shrimp trawl fishery, for sure, if a species is identified in part of the protocol that the observer is under to be able to collect that data, he is collecting size, weight, everything for those individual species. If it's not part of the protocol to collect, it's being lumped in

a pile of finfish and discarded with no -- It could be weighed, and there is probably total weight, but there's not going to be any individual measurements or things like that in that group.

Way back, there was a program called bycatch characterization, and those observers collected on every single species that came up, and you can imagine that is a very intense protocol for that observer, and that is not being done now, and so we have general observer programs, in fact, that the species that are high-level species that are managed -- The information is collected on those, but not on all of the other species that are caught.

DR. KILBORN: Okay, but even the size -- So size is typically recorded, but it's not being used, and is that correct?

CHAIRMAN NANCE: Well, the size -- If it's on an individual species the size is in there, yes, absolutely, but if it's a pile of fish that is simply being weighed and discarded as fish, they're not going to be individually categorized in there, no. Remember, on a shrimp trawl, you're talking about hundreds of pounds that the observer is going to have to go through to analyze.

DR. KILBORN: Well, so I am not only speaking of the shrimp trawl, and so like in any -- There could be ten million spotted seatrout that were discarded by the private fishery in the --

CHAIRMAN NANCE: I don't know on that one.

DR. KILBORN: Were those all adults, or were they everything, that kind of stuff, and I'm just wondering if --

CHAIRMAN NANCE: I don't know on those, and certainly you would have to look at each program and see what the protocol is for the discard information.

DR. KILBORN: I don't have an amendment or a motion or anything, but I'm just wondering if that's something that anybody else thinks is important and would like to try to make a recommendation for that.

MR. RINDONE: Mr. Chair, can I interject, please?

CHAIRMAN NANCE: Yes, please, Ryan.

MR. RINDONE: We're at 4:30 right now, and we still have public comment and an Other Business item, and so, if there are questions that SSC members have that aren't -- Basically, if we have anything that's not resulting in additional guidance about the document, if

we could try to address that at a later time, that might be prudent, so that we can get through the rest of the things that we have obligated ourselves to.

CHAIRMAN NANCE: Okay. Thank you. If we have specific motions and things, we certainly would entertain those. Mandy.

DR. KARNAUSKAS: Given the time, I will be brief, and I just wanted to second Rich's concern, looking at the presentation, and some of the numbers on recreational discards are just really phenomenal, and, again, I have relatively little experience on the SSC, and I'm not sure what sort of motion we could put forth, but I just wanted to put, on the record, that I think those are concerning and that we ought to think about how the SSC might help address those, or advise how we could address that issue. Thank you.

CHAIRMAN NANCE: Thank you, and I will tell you what I will do, for Josh and Mandy. I will -- While it's not in the form of a motion, I will certainly make a -- During my presentation to the council, I will update that concern. Benny Gallaway, please.

DR. GALLAWAY: I put my hand down. I'm sorry.

CHAIRMAN NANCE: Okay. Thank you. Trevor.

MR. MONCRIEF: I will be brief, Mr. Chair, and so, to Rich's and Mandy's points, let's not forget that there is an ongoing effort between the states and NOAA OST to find the drivers between the differences in the recreational surveys, and, right now, that's specifically for red snapper, but I think that's -- That conversation leads into the same sort of thing, and so it's being addressed, and not directly in what you all are talking about, but it is a conversation that's happening at the moment.

CHAIRMAN NANCE: Thank you, Trevor, and thank you for all those comments on this bycatch program. Certainly, it's an important program, and, Dan, thank you for that presentation. Ryan, we'll go ahead and go into Other Business now.

OTHER BUSINESS
SCAMP TERMS OF REFERENCE

MR. RINDONE: Thank you, Mr. Chair. Last time around, you guys approved Term of Reference Number 1, and we need to take a quick look at Term of Reference Number 2, which I thought that we had all mapped out, but sometimes things can get a little dicey with things that we haven't actually assessed before, and so, in the version that you have up in front of you, Bernie is going to scroll

down to Item Number 2.

We had some discussions the last time about that bullet point there, and so everything at this point has been corrected, with the exception of the MSST, which -- Instead of one minus M times BMSY, per Amendment 48, that will be 75 percent times BMSY, to be updated to be reflective of that, but, including that change, does the SSC have any further comments about Item Number 2 here?

CHAIRMAN NANCE: Please take a quick look at that, and then provide any -- Raise your hand, and we'll provide those comments directly to Ryan.

MR. RINDONE: I am just looking to make sure that we don't have any outstanding feedback or anything, and no motions are required here, but we just need to make sure that we can pass this on to the Science Center yesterday.

CHAIRMAN NANCE: Just make sure there's nothing in here that we're going to be sad that it's here.

MR. RINDONE: Mr. Chair, if there are no other hands, then I will go ahead and transmit this to SEDAR and the Science Center, so that they have confidence in the terms of reference, and we can consider this one tied-off.

CHAIRMAN NANCE: Thank you very much, Ryan.

MR. RINDONE: Then I will be reaching out to folks about participation in the life history workgroup, and that will happen after this meeting, because of time. Thank you.

CHAIRMAN NANCE: Okay. Thank you. Let's go ahead and -- If there are no further items of business for the body, we have the public comment period, and so, anybody that would like to participate in the public comments, please identify yourself, and we will look forward to hearing from you. We will give it a minute more. Okay. Thank you.

I certainly appreciate everyone that was on the call today, and I certainly appreciate the committee, and I felt like we made some progress on a lot of different issues, and I appreciate your attendance, so until next time, and you guys take care of yourselves.

MR. RINDONE: Thank you, Mr. Chair, and just one more thing. Just to remind everybody, all stipend-eligible SSC members, to please submit their forms promptly, and I will be sending you guys a

doodle poll for the week of March 7, and I realize that, for some, other participants outside of the direct SSC members, that these dates are a little bit problematic, because of the overlap with the South Atlantic Council meeting, but, in looking at the available dates, we are very, very limited for the time period between this and the next council meeting, and so, Mr. Chair.

CHAIRMAN NANCE: Jim Tolan.

DR. TOLAN: Thank you, Mr. Chair. I am going to use this public comment as going through a very meaty agenda, and to do it remotely like you did, should be commended. I thought you ran an excellent meeting, and we had a lot to cover, and so to do that remotely should be commended, and so hats off to you.

CHAIRMAN NANCE: Thank you, sir. I appreciate it, but this is -- I enjoy working on this committee, and it is a joy for me to do, and so thank you for that. Harry.

MR. BLANCHET: This is a simple, hopefully simple, request for Ryan. I have --

MR. RINDONE: We are all declining all requests at this time, Mr. Blanchet. Just kidding.

MR. BLANCHET: I have a tendency to forget deadlines, and it would really help me if you would provide us a notice when stuff starts to hit that website, so that we can start review of it. Somehow I always get a notice that there's stuff up there, but I see it like two days before the meeting starts, which creates some panic on my part to get reviews done.

MR. RINDONE: Sure, Mr. Blanchet, and I actually do send out a notice once stuff starts going up there, like once the agenda is posted and the website is up, to let you guys know that this is where you can find the information, and I send you a link, so that you can just save and click on that link to navigate to that information, and, to all of you, if you find any links that aren't working, obviously, please let us know, and we'll get that addressed as immediately as possible.

You should expect that, between that first email when I send out that link that has the agenda up there and everything, and the point about two weeks out from the meeting, which, in this case will be February 22, during that window, materials will be continually uploaded, and so just keep checking back, and we try and get the big-ticket items up there as far in advance as possible.

CHAIRMAN NANCE: You do a great job at that, and I appreciate that. Josh.

DR. KILBORN: Thanks. This is another question about the meeting materials, and feel free to say no, obviously, but is it possible to link us to a direct folder, where everything is located, so that we don't have to click on every single link to download everything individually, or is that possible?

MR. RINDONE: We can try to do a zip file this next time around, but, in the meantime, we'll continue to be uploading things as they're made available, and so a zip file likely won't be available until a day or so after the 22nd deadline, and so, if you want to review things more quickly, the old-fashioned way will work better. If you want to just be able to download everything in one shot and then start, you will have to wait.

DR. KILBORN: No worries. Thank you.

CHAIRMAN NANCE: Thank you, Josh, for that. Ryan, thanks.

MR. RINDONE: Yes, sir.

CHAIRMAN NANCE: Bernie, thank you very much.

MS. ROY: You are very welcome.

CHAIRMAN NANCE: We will talk to each of you soon. Bye.

(Whereupon, the meeting adjourned on January 13, 2022.)

- - -