GULF OF MEXICO FISHERY MANAGEMENT COUNCIL

STANDING, REEF FISH, SOCIOECONOMIC, SHRIMP, AND SPINY LOBSTER SCIENTIFIC AND STATISTICAL COMMITTEES

Hilton Westshore Tampa Airport Hotel Tampa, Florida

JUNE 1-2, 2016

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The Standing, Reef Fish, Socioeconomic, Shrimp, and Spiny Lobster Scientific and Statistical Committees of the Gulf of Mexico Fishery Management Council convened at the Hilton Westshore Tampa Airport Hotel, Tampa, Florida, Wednesday morning, June 1, 2016, and was called to order at 9:00 a.m. by Chairman Luiz Barbieri.

INTRODUCTIONS

CHAIRMAN LUIZ BARBIERI: It's time for us to get started. Good morning. My name is Luiz Barbieri, and I will welcome all of you as the Chair of the Scientific and Statistical Committee of the Gulf of Mexico Fishery Management Council.

We appreciate your attendance and input at this meeting. Representing the council is Leann Bosarge. Council staff in attendance are Steven Atran and Charlotte Schiaffo. Notice of this meeting was provided to coastal newspaper throughout the area, Marine Extension and NMFS port agents, and the Federal Register. Notice also sent via email to subscribers of the council's press release email list and was posted on the council's website.

Today and tomorrow's meeting will include the following topics: Adoption of Agenda and Selection of SSC Representative at the June 2016 Council Meeting. For the Standing, Socioeconomic, and Shrimp SSC Session: Approval of the March 8, 2016 Standing and Special Shrimp SSC Minutes; Shrimp Amendment 17B - Review of Amendment and Summary of Aggregate MSY/OY Working Group.

For the Standing, Socioeconomic, and Spiny Lobster SSC Session: Approval of the Spiny Lobster Portion of the March 10, 2015 Standing, Special Shrimp, and Special Spiny Lobster SSC Minutes; Review of 2014/2015 and 2015/2016 (Preliminary) Spiny Lobster Landings, which sub-items of Spiny Lobster Review Panel Summary and Spiny Lobster AP Summary; and then Other Non-Reef Fish Business.

For the Standing and Reef Fish SSC portion: Approval of the January 5 and 6, 2016 Standing and Special Reef Fish SSC Minutes; SSC Members Serving as Council State Designees; Discussion of Methods to Address Recreational Red Snapper ACL Underharvest; Review and Approval of the Terms of Reference for the Gag Update Assessment and the Greater Amberjack Update Assessment; Review of Research and Operational Cycles for SEDAR Stock Assessments; Review of SEDAR Assessment Schedule; Decision Tool for Gray Triggerfish Bag Limits, Size Limits, and Season Analyses; SEDAR 45 Vermilion Snapper Standard Assessment;

Reevaluation of SSC Recommendations for Hogfish Equilibrium ABC; OY Exceeding MSY in Some Scenarios; Review of Draft Amendment 44 - MSST and MSY Proxies for Reef Fish Stocks; and then Reef Fish Other Business.

This meeting is open to the public. Members of the public are welcome to speak at times that will allow the orderly conduct of business. Please advise me or the council staff if you desire to address the committee. This meeting will be streamed live and recorded. Summary minutes of the meeting will also be made available to the public. For the purpose of voice identification, each member is requested to identify him or herself, starting on my left.

MR. STEVEN ATRAN: Steven Atran, Gulf Council staff.

DR. BOB SHIPP: Bob Shipp, Alabama.

DR. JACK ISAACS: Jack Isaacs, Louisiana Department of Wildlife and Fisheries.

DR. DAVID GRIFFITH: David Griffith, East Carolina University.

DR. KEN ROBERTS: Ken Roberts, retired, LSU.

DR. JIM TOLAN: Jim Tolan, Standing SSC

DR. JIM NANCE: Jim Nance, National Marine Fisheries Service, Galveston.

DR. WALTER KEITHLY: Walter Keithly, Louisiana State University.

MR. BOB GILL: Bob Gill, Standing SSC.

DR. MARY CHRISTMAN: Mary Chrisman, MCC Statistical Consulting, Standing SSC.

DR. STEVEN SCYPHERS: Steven Scyphers, Northeastern University, Standing SSC.

DR. JEFF ISELY: Jeff Isely, Southeast Fisheries Science Center, Standing SSC.

DR. GABRIELA STOCKS: Gabriela Stocks, University of Louisville.

DR. PAUL MICKLE: Paul Mickle, Mississippi Department of Marine Resources.

DR. BENJAMIN BLOUNT: Ben Blount, Standing SSC.

DR. JEFFREY MARX: Jeff Marx, Louisiana Department of Wildlife and Fisheries, Special Shrimp SSC.

MR. RICK BURRIS: Rick Burris, Mississippi Department of Marine Resources.

MS. LEANN BOSARGE: Leann Bosarge, Gulf Council.

DR. JOE POWERS: Joe Powers, Louisiana State University.

CHAIRMAN BARBIERI: I think there are some SSC members that are in the back there, Socioeconomic, I believe.

DR. MATTHEW FREEMAN: Matt Freeman, Mississippi State.

DR. SHERRY LARKIN: Sherry Larkin, University of Florida. I think I'm on the Special Spiny Lobster and Socioeconomic

DR. LEE ANDERSON: Lee Anderson, retired, University of Delaware.

CHAIRMAN BARBIERI: Thank you. Do we need to go through public introductions for members of the public in attendance?

MR. ATRAN: No, but if anybody speaks from the public, they should come to a mic and identify themselves.

CHAIRMAN BARBIERI: Then we have additional council staff in the back. Ava.

DR. AVA LASSETER: Ava Lasseter, Gulf Council staff.

DR. ASSANE DIAGNE: Assane Diagne, Gulf Council staff.

ADOPTION OF AGENDA

CHAIRMAN BARBIERI: Thank you. For members of the public or others in attendance who would like to address the committee, when you do so, please make sure that you speak into the microphone and identify yourself, for the administrative record. We are beginning this morning with the Adoption of the Agenda, since we already had our introductions. Any comments or suggestions? Any comments or questions?

SSC MEMBER: Move we adopt the agenda.

SSC MEMBER: Second.

SELECTION OF SSC REPRESENTATIVE FOR THE JUNE 2016 COUNCIL MEETING

CHAIRMAN BARBIERI: The agenda is approved as it stands. Thank you for that. Our Agenda Item Number II, Selection of SSC Representative at the June 2016 Council Meeting, it's already taken care of, because the meeting is actually going to be here in Florida, and I am available to attend and present our report to the council, unless there are other members who would be interested in taking that over. Seeing no interest, we will proceed with the next item.

We are about to start the Standing and Socioeconomic SSC Session. The first order of business under this session is Socioeconomic Considerations for Section Management, and Ava and Assane are going to be presenting to the committee on this. We are going to review Reef Fish Amendment 41, the Red Snapper Charter/For-Hire, and the Reef Fish Amendment 42, the Reef Fish Headboat Management.

Let me just quickly go over these items in our scope of work, so the committee members have a better idea of the action items they're being asked to address. Staff will provide an overview of the amendments being considered by the council for the management of red snapper for charter vessels, this being Reef Fish Amendment 41, and reef fish for headboats, which is Reef Fish Amendment 42.

The Standing and Socioeconomic SSC is expected to give feedback to the council on the allocation-based management approaches under consideration in these regulatory actions. The Standing and Socioeconomic SSC is also asked to identify issues relevant to allocation-based management not addressed in these amendments and suggest additions, if warranted. With that, I will ask the council staff to -- Dr. Diagne, is it going to be you?

DR. DIAGNE: Yes, Mr. Chair. I will start, and Ava will jump in and also continue afterwards. Thank you.

MR. ATRAN: Before you start, Assane gave me this presentation yesterday, and

SOCIOECONOMIC CONSIDERATIONS FOR SECTOR MANAGEMENT REEF FISH AMENDMENT 42 (REEF FISH HEADBOAT MANAGEMENT)

DR. DIAGNE: Yes, and the document on which this presentation is

based has been submitted as part of the briefing book material. This is just a summary. Thank you, and good morning, again. I will try to start the discussion for these allocation-based management approaches that the council is considering to manage the for-hire sector.

Essentially, what the council had done, it has attempted to separate the for-hire sector into two groups, one being the headboat vessels and the other one being the charter vessels, and the council directed us to start developing two amendments. One of them, Amendment 41, as noted, would look specifically at the charter vessels, and 42 would concentrate on the headboat vessels.

I am going to start the discussion, because there is some overlap between the two actions, and Dr. Lasseter will jump in at any time and, after the first part, she will add additional considerations.

This is Reef Fish Amendment 42, the reef fish management for headboat survey vessels. Here, perhaps we need to reemphasize the title. The title does not say “headboat”. It says “Headboat Survey Vessels”, and I guess the distinction will be clear as we proceed.

One of the first challenges that we are facing is to be able to, I guess, clearly define the two universes, because, to date, we have a single federal reef fish for-hire permit, and charter vessels, as well as headboats, own the same permit, and we have to find a way of separating the two and defining clearly the universes, which vessels would be included in this amendment, meaning Amendment 42, and which vessels would be included in the other amendment, Amendment 41 for the charters.

The last time we checked, we had about 1,300 federally-permitted for-hire vessels, reef fish, that is. In Amendment 42, the vessels that we are dealing with would be those vessels that, of course, have the federal permit and have landings history at the Southeast Survey, the Beaufort Survey. The last time we looked at it, it’s about sixty-seven vessels, by 2015.

Then, if we subtracted these sixty-seven vessels, the remainder would be the federally-permitted for-hire vessels that would be considered as charter vessels, and those would be included in Amendment 41. Give or take, that would be 1,250 vessels, let’s say.

One thing to note is, because, essentially, the headboat survey

at the Beaufort Lab can add vessels to the survey at any moment, we discussed with the council the need for a control date, meaning a date by which if a vessel did not have a landings history at the Beaufort Lab, they would not be considered in this amendment, because, if not, this would be a continuously-moving target, meaning every time a new vessel is added to the survey, then it should be considered as part of this down the line, and, of course, then, in terms of allocation to individual vessels, that would be challenging.

We discussed this with the council during the April council meeting, and the council established a control date of December 31, 2015, meaning that, to be included in Amendment 42 and be considered a headboat survey vessel, the vessel has to have landings by the control date at the Beaufort Survey.

This is the purpose and need for the amendment, as written right now, and some of the things that the council is interested in is to reduce management uncertainty for the fleet, improve economic conditions, and improve the access to those recreational anglers that fish from headboat survey vessels.

Now, I am going to run through the series of management actions that are included in this amendment so far. Essentially, the first action, the first decision point, if you would, would have to decide what type of management approach the council would want to consider for the headboat survey vessels.

We will start with the no-action alternative. By that, we would mean that the council would continue to manage the fleet using traditional methods. By that, we mean size limits, bag limits, seasonal closures, and the like.

If the council decided to go with no action, obviously there wouldn't be the need to pursue this amendment any further. We could just have a framework action, for example, to change the bag limit or the size limit for the fleet.

The two alternative approaches that are being considered currently by the council would be, one, some type of an individual fishing quota program, in short, IFQ, for the headboat fleet, or, two, a permit fishing quota, and the distinction between those two would be that, under a permit fishing quota, or PFQ, the individual allocation, or the individual shares, would be tied to the permit, meaning that for one to sell their shares, they would have to sell the permit with it, and so it is less flexible, if you would, than the IFQ approach, which would allow one to sell a portion, if you would,

of their shares, or at least to get rid of a portion of their shares. These are the two alternatives that the council is considering at this time, and no decision has been made, to date.

When the council directed us to initiate Amendment 42, this amendment for headboats, they considered the reef fish in the general sense, and we looked a little deeper into this, and we realized that we have, essentially, in the Gulf, six reef fish species for which you have a clear separation, if you would, or clear ACLs between the recreational and the commercial sector. Given that you need to allocate to the headboat group a portion of the recreational ACL, and so those would be the primary candidates, but one of those species, black grouper, has very limited landings. In fact, for the headboat sector, those are really negligible, and so we concentrated on the five major species.

The council has indicated, during a previous council meeting, that their preferred alternative would be to design this program for the five major reef fish species for which we have a recreational ACL, and those are on the board. They would include, of course, red snapper, gray triggerfish, greater amberjack, red grouper, and gag grouper.

The council also did express interest in providing the opportunity to the operators to opt in or opt out of this program, if you would, and this is what this action intends on doing. The no action alternative here would be to not provide the option to opt out from this program, and the control date that we mentioned earlier, December 31, 2015, would be used here also, and so the no action alternative would be that all headboat survey vessels would participate in the management plan and the development.

Alternative 2 would allow headboat operators to opt out before the implementation of this, before we start in this management approach, but this ability to opt out will be provided only at the onset of the program, at the beginning, so that a vessel that decides to not participate would be then, I guess, turned over to 41, which is the other amendment, which will deal with the remainder of the for-hire fleet.

As we mentioned in the introduction, one of the challenges is to have a clear definition for the two universes, headboat survey vessels and charter vessels. The action also speaks to that, because the council is considering going one extra step by either establishing an endorsement to the reef fish for-hire

permit or splitting the permit outright.

This alternative here, Alternative 2, would establish an endorsement to the reef fish permit for headboat survey vessels, and this endorsement could be made transferable or non-transferable. The third alternative, rather than establishing an endorsement to the permit, would consider splitting the for-hire permit into a headboat permit and a charter permit.

Assuming that the council moves forward with this, the next decision point then would be how much of the recreational ACL should be allocated to the headboat component for the purposes of this management plan to be developed, and we have a series of years under consideration to make the allocation to the headboat survey vessels.

Essentially, it could be from the most recent five years or perhaps using the longest data series available, which would start from 2004 all the way to 2015, or take a middle course and take 50 percent of each one of the approaches.

These are just examples to essentially give us an indication as to the amount that potentially could be set aside for the headboat component. By and large, these are fairly small amounts, perhaps with the exception of red snapper, for which it runs around 12 percent, but, for the other species, the major species, it is somewhere between 4 and 8 percent.

Considering the way in which the for-hire fleet conducts business, then one of the issues discussed by the council and also by the AP has to do with how should these allocations be distributed to the individual operators and how should they report, and the alternatives under consideration would be to do what is done traditionally, meaning allocating in pounds and reporting in pounds.

That wouldn’t be very practical for the for-hire fleet in general, and the two other alternatives under consideration would be to allocate in pounds and report in pounds using some average weight for each species or allocate in pounds, but give them the flexibility to report landings in numbers of fish. Again, here, we would have to use some average weights, and those could be adjusted by region and by time of the year, et cetera. This is also just an indication about the number of fish that have been landed, on average, actually in 2015 for the five major species that we spoke of.

Once we have allocated a portion of the recreational ACL for

each one of the species under consideration to the headboat component, we need to address the individual allocation, meaning to individual headboat operators in this program, and we have a variety of alternatives here, no action, meaning that the program could not go forward if you don't decide on an individual allocation, and the other four alternatives consider a variety of years, from the most recent one that we have one record to date, meaning 2015, to some combinations of the five more recent years, allowing them to exclude their year of lowest landings, for example, or allowing them to pick their single year of best landings on record.

About the distribution of initial shares, the council is considering, here, several options, and these range from an equal distribution to all participants to a proportional distribution based on the catch histories on record at the Beaufort Lab, and, finally, as requested by the Magnuson-Act, one needs to consider the use of auctions when distributing initial shares.

Essentially, here, the council has the flexibility to do a little bit of both if they so choose. Alternative 2 can allow the council to pick between equal distribution and a proportional one, for example 50 percent of the headboat shares distributed equally and the other 50 percent distributed based on catch history. If the council wanted to consider options further, they could take another portion of that and auction it off.

The remainder of the actions address some of the issues that need to be taken care of in limited access privilege programs, one of which being what type of transferability restrictions, as it may be, would the council want to consider when establishing such a program.

The no action alternative here would be to not allow any transfers of shares at all, and the other alternatives would allow transferability under limited conditions, if you would. One of them would make sure that the shares stay within the fleet. To do that, you would require essentially that any recipient of shares, or annual allocation, later on, to have the federal for-hire permit and to also have the endorsement or permit, whichever one the council established in the previous action, which I believe was Action 4.

For a PFQ, of course, this is not an issue, because for a PFQ, a permit-based fishing quota, you won't be able to sell a portion of your shares. You would have to sell the entirety with the

permit, and so this would really apply to the individual fishing quota program or some type of program.

Now, what conditions should the council require to allow a participant to maintain the shares that they were initially allocated? For example, if you look at the commercial programs that we have, we didn't have any conditions, meaning that one could be allocated shares during initial distribution and then let the permit lapse and keep on receiving the annual allocation attached to those shares.

Here, the council, perhaps, has the opportunity to make sure that those who continue to receive annual allocation based on these shares maintains a valid permit, and the idea here, should the council decide to go this route, is to make sure that these shares stay in the hands of active participants in the fishery.

The same here for annual allocation. What type of conditions should the council impose to have one maintain annual allocation? It's the same idea. Should the person be an active participant in the fishery or should it be open to anyone?

We are also required, by law, to consider ownership caps to prevent any entity from owning or controlling an excessive share of the resource, I believe, or something along those lines. The caps here, we have a no-action alternative, and the other two alternatives, Alternative 2, is typically what we have done in previous programs, but those programs, of course, were commercial programs and it was, essentially, to set the cap at the maximum amount that was distributed during initial allocation.

Essentially, we would pick the person or the operator that received the highest amount, let's say the 10 percent, and then set the ownership cap at 10 percent, meaning everybody else has the potential to increase, perhaps, their ownership, except for that person that received the maximum amount.

Alternative 2 offers alternative percentages and, quite frankly, at this moment, we don't have justification for these numbers, 2, 5, and 10 percent. Through discussions, I guess, perhaps the council may come up with alternatives that would be based on either the frequency distribution of the landings or some other approaches.

Again, here, to give us an idea about who lands what at this moment, these are the maximum landings per share category for a given permit. For red snapper, it's in the neighborhood of 7

percent, and almost 20 percent for greater amberjack, and close to 20 percent for the remainder of the species here.

Here again, allocation caps. The council can choose to also set allocation caps to go with the share ownership caps that we just discussed. For allocation caps, it could be tracked, if you would, and set caps cumulative throughout the year or caps could be set in terms of ownership at any specific point during the year.

Our quotas, of course, vary. They go up and down, and so there is a discussion, to be continued, as to how should those changes in quota, quota increases, be distributed. These are preliminary ideas and, in fact, during the AP meeting and at the IPT level, we are also discussing additional ideas, and part of it is that perhaps quota increases can provide an opportunity to assist the small shareholders increase their participation in the fishery.

I think this is the final action in the amendment, and it addresses cost recovery fees, and cost recovery fees, these are required by the Magnuson Act. We should recover the cost of administering the program, but, in the Act, it is said that one can withhold up to 3 percent of the ex-vessel value of the resource. Obviously, when that was written, it had commercial fisheries in mind. We do not sell fish, typically, in the for-hire sector, and so a question mark is what should we use when it comes to the ex-vessel value on which the cost recovery fees would be based?

Some of the ideas that we are looking at would use standard price, and that standard price could be based on the commercial ex-vessel price of the species in question or it could be based on the average annual allocation price of the resource, assuming that there is transferability of that annual allocation price. Finally, we could look at the fees that the passengers aboard those vessels pay and prorate those and base the cost recovery fee on those fees paid by the passengers.

In a nutshell, this is a very quick overview of Amendment 42. We have still a lot of questions, because these would be, 41 and 42, the first allocation-based, if you would, management plans in the recreational sector, as far as the council is concerned. I am going to turn it over to Dr. Lasseter for her to add things, and, if you have questions, I can take them now or later, at your convenience, Mr. Chair. Thank you.

DR. LASSETER: I think I just wanted to add a couple of

comments. I know that you discussed 42 before we turned to 41, and I will just add a couple of the key differences between 41 and 42, to separate them for your discussions on 42.

As Dr. Diagne noted, Amendment 42, what he has just discussed, would apply to headboat survey vessels only, only those sixty-seven vessels that are currently participating in the Beaufort Headboat Survey study. They are required to report. They are now reporting electronically, and it's every trip. It's daily. It's with increased reporting frequency. National Marine Fisheries Service had increased the reporting frequency as well.

On the other hand, Amendment 41 is going to apply to charter vessels. All of those vessels with that permit, the charter/headboat permit for reef fish, but those vessels possessing that permit that are not participating in the headboat study, in the headboat survey.

These other 1,250 vessels, their landings are estimated through a part of MRIP, through a for-hire survey which calls about 10 percent of them weekly and surveys their landings and their effort, and so we do not have landings for these species for these charter vessels in 41.

In the amendment Dr. Diagne just talked about, we do have landings histories for each of these participating vessels, and that's a key distinction. One other distinction concerns the species that are included for each of these. 42, we just heard that currently the council is considering that it would apply to five species. Amendment 41 would apply to red snapper only, and so, for red snapper and those vessels that are not participating in the headboat survey that we do not have landings histories for these vessels. Then I will go through the structure of 41 after turning it over to the SSC for discussion.

CHAIRMAN BARBIERI: Thank you for that, Ava. That really, really helped distinguish between the two amendments being discussed. With that, I am going to open the floor to the committee for questions. I have Jeff and then Ben.

DR. ISELY: Are there currently any other PFQ fisheries in the Southeast?

DR. DIAGNE: In the Southeast? I will turn to Jessica, but the example that we have is for bluefin tuna. That's the only PFQ that I know of, but she could add some clarification.

DR. JESSICA STEPHEN: Highly Migratory Species, which includes

the Southeast as well as all the way up to the Northeast, does have a permit-based fishing quota for bluefin tuna, which is considered a bycatch species within that program. In their program, the shares are attached to the permit. You can't separate their shares from the permit and you can't change the amount associated with the permit.

DR. ISELY: To follow up, are there any other recreational type of fleets, and I know this is a commercial fleet, where we do any cost recovery? I mean is this a pretty standard thing on the commercial side?

DR. DIAGNE: For the cost recovery, I mean on the commercial side, in our programs, yes, as mandated by the Magnuson Act, but this is the first recreational limited access privilege program, if you would, that we are attempting to design, but we will have to have cost recovery, because, for all of these programs, one has to recover the cost of administering the program.

DR. STEPHEN: The only other similar type of program is a guideboat program that's recreational, but what they do is they get their allocation from a commercial fleet, and that's in a different region, and so they don't have cost recovery associated with the recreational area.

CHAIRMAN BARBIERI: Thank you. I have Ben and then Jim Tolan.

DR. BLOUNT: Just a quick question, Assane. Do the headboat operators have any strong preference for a PFQ over an IFQ? Is there any information on that?

DR. DIAGNE: Right now, not a definite preference. During the previous AP meeting, which was in early May, a motion that they passed leans towards the IFQ, and the reason being that you could have the IFQ type and do exactly the same thing, or close, to a PFQ, while still maintaining a certain level of flexibility.

CHAIRMAN BARBIERI: Jim.

DR. TOLAN: Thank you, Mr. Chairman. The question that I had deals with the data stream that we have for historical catch records. Are there any headboats now currently operating that aren't in the headboat survey program? The way I approach it is, at least off of Texas, if you have a boat that goes out for a charter, it can only carry up to six people. After six, you're considered a headboat, and so is that the same throughout the Gulf?

DR. DIAGNE: For the Beaufort Survey, they consider that the vessel carries at least fifteen and above and charges primarily by the head, essentially.

DR. TOLAN: Then I guess a follow-up. Are there boats now that are considered headboats that are not in the program?

DR. DIAGNE: I think there may be, yes, and part of the reason for the control date is to make sure that we can separate those.

CHAIRMAN BARBIERI: Ken Roberts.

DR. ROBERTS: Thank you, Mr. Chairman. Assane, on Action 3, participation at the outset, the question I have there is that the vessels opting out at the start, the document says they may be able to get in, depending on transferability options to be chosen. When are those transferability options going to be clear to people, so that they can make the decision to opt in or out? That's not clear in the document, what the sequencing is.

DR. DIAGNE: Yes, and essentially -- I mean before this whole document, this whole amendment, goes final, the council would have to select preferreds for all of the actions, one of which being the transferability conditions. In the transferability, we have some alternatives that would allow these shares to be transferred to anybody or to anybody with a reef fish for-hire permit.

The no action alternative there prevents transferability, and so if the council allowed the transfer to anybody with a reef fish permit, then they would be able to get in through transferability, but if the council decided that we wanted these shares to be non-transferable, then they won't be able to get in, but they will be able to know this before making the decision, because their decision would come after the amendment goes final, prior to implementation.

DR. ROBERTS: A follow-up. I just want to make sure that -- In the document that we just went through, 42, there was only one red section where the Headboat AP had a preferred alternative, and what I'm suggesting is that the council, I think, on the key thing of transferability, needs a lot more input somewhere along the line, and this report, as given to us, only has one piece of advice that a preferred alternative exists with the headboat people, and I think that needs to be drawn out a little bit more for the scientific committee and the council to make a better decision on transferability.

DR. DIAGNE: Yes, Dr. Roberts, and the red that is in the document, the preferred alternative, is not an AP preferred. It is a council preferred. It is the council that, to date, has only made one decision, and essentially it is to give us the direction that, for this amendment, we need to consider all of those five species, but, for the remainder of the actions, the other thirteen actions, the council has not indicated its preferred alternatives yet, but they will. This document is up for discussion in June, and with your discussions here.

DR. ROBERTS: In the document, it says the Headboat AP recommended the inclusion of the six major reef fish species, and so there's something not being --

DR. DIAGNE: That's in the discussion part. The Headboat AP recommended the inclusion of the six, and the council chose, as a preferred alternative, to go with the five that we discussed, essentially, and so the council will continue discussing this and will indicate additional preferreds.

CHAIRMAN BARBIERI: Yes, Walter.

DR. KEITHLY: Thank you, Mr. Chairman. Just a quick question, or maybe you can elaborate on this, Assane. The discussion of monitoring of this program is given at the beginning of the document, but there's not a lot of discussion. Has enforcement looked at this and given any opinions as to whether the discussion on monitoring will be sufficient in this program?

DR. DIAGNE: Yes, this is, I guess, one of the challenges and one of the big question marks. One of the reason is that, at the same time that we have initiated the development of this action, the council is considering alternative avenues for the reporting and monitoring of for-hire landings and effort, and so there is, I believe, a technical committee that is meeting and is looking at the different options available there, and so we are waiting to see the recommendations of that technical committee and the council's decision and to better see how those two could be integrated, because, of course, the level of monitoring for a limited access privilege program has a much higher threshold, if you would, than just a simple season or bag limit or size limit and so forth.

DR. KEITHLY: On that, again, with the commercial, you have several levels of monitoring. As I recall, the fisherman landing has to report and then it goes to the dealer, who also has reporting records, and so there is a couple of different

ways to verify the landings. From what I can tell, in this program, it's simply the boat calling in ahead of time and saying what's going to land. Is that correct?

DR. DIAGNE: No, essentially, your first point, when it comes to the fact that the monitoring and reporting section needs more, that is absolutely the case, and that is forthcoming. Part of the reasons why I guess we are slowing down and waiting to see further is because the council set up a technical committee to address electronic reporting for the for-hire fleet, but, absolutely, within a program like this, one would need a hail-out and hail-in.

One would need approved landings sites, meaning restricting the point at which these boats could be landed, and what would need real-time reporting, as well as the ability for enforcement to come and check the landings. I would let Dr. Stephen add to this, because there has been a pilot program that was run for the headboat sector.

DR. STEPHEN: We did run a two-year program for red snapper and gag with seventeen to nineteen vessels the prior two years. With that, we had approved landings locations, hail-ins and hail-outs. In the hail-in coming back in, they did report how many fish they had onboard.

That was sent out through email notification to port agents as well as law enforcement agents, who then had the opportunity to meet them at the dock, do a count there, and then we also had the landing transaction, which was separate from the hail-in, that we also verified, and so we had a three-point verification of the values, and we had IFQ staff looking over those daily, to make sure the numbers matched, or, if there was a discrepancy, to track down what the discrepancy was.

We've also had input from the agents who participated in that, which will be in the 2015 report for the headboat survey program, of input they had, and you can see some of their input in the 2014 and suggestions of ways to make it easier on them.

CHAIRMAN BARBIERI: Thank you for that clarification, Jessica. I have David Griffith and then Bob Gill.

DR. GRIFFITH: I am interested in this issue of numbers of fish versus pounds of fish, and, first of all, do you know which is preferred by the headboat captains, the charter captains, and their customers in particular?

Secondly, when I look at the data that you present in the report, it's all in pounds. There is nothing on numbers of fish, and so, I'm wondering, can you tease the number of fish out from the pound data or do you have that data?

DR. DIAGNE: Yes, and, initially, I believe when the folks report to the Beaufort Survey, they report in number of fish. Then that is converted into pounds. Again, during the exempted fishing permit program for the headboats that was run, they reported in number of fish, and I would let Dr. Stephen speak to that a little more.

DR. STEPHEN: What we did in the pilot program is everything was converted at the beginning of the year, from an average weight used, from pounds to numbers of fish, and that's what the program reported in. Throughout the year, with the port agents, we got average weights, and we compared, every two to four weeks, what the in-season average weights were to the pre-season weights, and they were fairly close. The first year, they were very close, and, the second year, we had a little bit more of a discrepancy, but it was still within an easy range of using that preseason weight.

We're anticipating, if we go forward with this program, something similar, but probably not necessarily at that frequency, considering the increased number of boats, might be done, in order to track what's going on. We're still considering a lot of different options with the fish to weight.

One of the other things put forward that should be in consideration is that this combination of pounds are distributed to the accounts that then get converted to a weight for a vessel. Particularly with red snapper, the average weight is different in different regions, and so a fish in Texas is not necessarily equal to a fish in the Panhandle.

What we would do is force the conversion fish numbers back to pounds before the transfer occurs, so that everyone is getting a fish number equivalent to the poundage in their region. That's not decided on yet. It's still just an idea being explored, and we would love some feedback on that.

CHAIRMAN BARBIERI: A follow-up, David?

DR. GRIFFITH: I'm not sure, but did you answer the question about which do they prefer? Do you have any information on that?

DR. DIAGNE: Yes, the indication, so far, would be that they would prefer the distribution in pounds, but the reporting in number of fish.

CHAIRMAN BARBIERI: Bob Gill.

MR. GILL: Thank you, Mr. Chairman. Assane, would you clarify the interplay between the sunset provision being considered in Amendment 45 and these amendments? If the sunset provision carries through and is not postponed or eliminated, then Amendments 41 and 42 are moot, are they not? If it's extended, then they can come into play for at least whatever extension of the sunset provision exists.

DR. DIAGNE: Yes, and perhaps a little bit of background. Before we started these Amendments 41 and 42, for red snapper and red snapper only, the council decided to separate the recreational sector into two components. One component is the federal for-hire component, meaning everybody with a federal for-hire reef fish permit and the other component, we called it in Amendment 40 the private angling component, and that includes anglers fishing from private vessels as well as state-permitted vessels, guideboats and the likes, but that was for red snapper only.

In that amendment, the council also chose to set a sunset provision. Essentially, the program, potentially, could lapse by the end of 2017. Subsequently, the council has initiated the development of an amendment, which is Reef Fish Amendment 45, to consider modifications to that sunset provision.

In April, the council picked a preferred alternative that would potentially extend that to 2020. That being said, this is specific to red snapper. When the council directed us, as staff, to initiate an amendment for the headboat sector, it included a variety of reef fish species, and, as you saw earlier, I believe in Action 2, the preferred would include five major species.

The understanding is that Amendment 42 is independent from sector separation, if you would, because it includes a wide range of species, species that had nothing to do with Amendment 40, if you would. 40 was specific to red snapper, but, here, in this amendment, you are designing a management plan for five major reef fish species, and so, essentially, I am not sure about 41. Essentially, in 41, you could say that, if sector separation lapses, 41 would become moot, but, for 42, it seems to me that it is a separate issue, given the breadth of the

species and the consideration there.

CHAIRMAN BARBIERI: A follow-up, Bob?

MR. GILL: A follow-on. Thank you, Mr. Chairman. I appreciate that explanation, but if the sunset provision does take effect, then 42 changes -- It goes down to the four species options, because red snapper would then not be separate, correct?

DR. DIAGNE: No, if the sunset provision kicks in, 42 would still address the five species, but then the difference is that, instead of allocating to the headboat component a portion of the federal for-hire quota, it would be then a portion of the recreational red snapper quota. That's the only difference for the headboat sector, and the idea here is that the headboat component is small enough, give or take sixty-seven vessels, that it was not really lumped in and considered at the same level as the charter/for-hire group.

CHAIRMAN BARBIERI: Any other questions for Assane? Seeing none, before we move on to Ava, we had another member of the Standing SSC join us, and so, for the purpose of voice identification, would you please identify yourself?

DR. KAI LORENZEN: Kai Lorenzen, Standing SSC. Thanks.

CHAIRMAN BARBIERI: Thank you. Yes, Assane.

DR. DIAGNE: Mr. Chair, if I may, I have one question for this body. One of the challenging issues for us is to better address this issue of cost recovery. As I mentioned earlier, the Act simply says up to a maximum of 3 percent of the ex-vessel value, and obviously that had commercial fisheries in mind.

We are interested, perhaps, in getting some feedback, if any, as to what would be the more suitable directions when it comes to looking at the ex-vessel value, and I put that in quotes, for recreational for-hire fisheries.

CHAIRMAN BARBIERI: Thank you, Assane, and a question question. Where does this amendment stand, in terms of the timelines for final action?

DR. DIAGNE: This is very early in the process, as you can see. The council still has a way to go before we can even look at the public hearing draft and then final action, and so I suspect this group will have another opportunity to see this. Perhaps then maybe that would be discussed later, too.

CHAIRMAN BARBIERI: Right, and that was the reason for my question, because if folks don't really have any input right now, this is not our last opportunity to provide input on this issue, but, having said that, any input from the committee regarding the cost recovery and the other issues in this Amendment 42? Jim.

DR. TOLAN: Thank you, Mr. Chairman. I would only ask, in terms of the cost recovery, is has this issue been broached to that sector, and what is their feel on the cost recovery?

DR. LASSETER: I can speak to that. Each of the APs that have met and convened for each of these documents have discussed and recommended that they would be willing to pay cost recovery. They have not commented on the specific alternatives, which is how to calculate cost recovery. I believe the Headboat AP did make a recommendation, as far as cost recovery. They supported it, but what was the last meeting?

DR. DIAGNE: Their recommendation is more along the lines that they are supportive of the idea, that they are willing to participate. Anyway, the decision would not be theirs. That is a requirement of the Act, either way.

CHAIRMAN BARBIERI: Thank you. Joe.

DR. POWERS: One of the -- In reading this, I wonder about the procedures when you're using it based on total fees. Are you talking about fees for an individual per trip or what? I guess my concern is this would imply another set of monitoring, would it not?

DR. DIAGNE: Yes, this would imply them reporting the fees collected to us, if you would. Yes, absolutely.

DR. TOLAN: That really kind of gets to what I was hoping to get at, from a headboat perspective. They're just going to pass that cost on to the customer, and so has that sector, I guess the customer, been informed or do they -- I mean the AP knows about it, but I'm just thinking, from a customer point of view, from fishing on a headboat to begin with, now the cost is going to go up even more to be able to go fishing on a headboat. Is this something that has a lot of public support?

DR. DIAGNE: Through the, I guess, public input process, when this amendment is further developed, we are going to have a series of public hearings and the like, and so the public would

have a chance to comment.

CHAIRMAN BARBIERI: If there is no other questions or input for Assane, let's move on to Ava's presentation on Amendment 41, please, Ava.

REEF FISH AMENDMENT 41 (RED SNAPPER CHARTER/FOR-HIRE)

DR. LASSETER: Thank you, Mr. Chairman. We're just going to take a look at the document here. I'm not going to go in as great detail through all of the actions and alternatives. If we could skim down to page 15, I did want to emphasize, as we just discussed, that, for both of these documents, these are early drafts. These are quite early in the process of amendment development.

The council did request that scoping meetings be held, and prior versions of this, when they were even more simple, or complex, if you would -- They were all over the place, considering a broader range of potential approaches, and we did go out for scoping.

Now, we are working on developing the decision points, identifying the decision points, and developing the range of alternatives, and so these are very early drafts, and so if we could blow up that figure at the bottom of the page there.

Also, 42, in contrast to 41, only considered what is in this figure on the left side, the Alternative 1 and Alternative 2. For 41, Section A, Action 1, similar to Amendment 42, the first decision is what type of allocation-based management program is the council interested in developing for the charter vessels.

Similar to 42, the Alternative 1, there on the left, says traditional management, use the framework action process. This would be seasons, where National Marine Fisheries Service would establish the length of the season, given the amount of the quota, past rates of efforts, landings. They could manipulate the bag limit. Currently, it's two per person per day. They could reduce it down to one and could modify the season start date. Of course, in front of this body as well, the council is kind of wary about modifying the minimum size limit.

Also in contrast to 42, the council has requested additional information about this Alternative 1 approach. We would not need to modify seasons and bag limits in a full plan amendment, a document like this. It could be done in this framework action process, but the council, for this body of vessels, for this

fleet of vessels, does still want to see what the seasons and bag limits could look like alongside an allocation-based management approach, and so we are taking that to the council at this next meeting.

Under the Alternative 2, fishing quotas, that is similar to Amendment 42. That Alternative 2, again, that is the extent of what Amendment 42 is considering at this time, IFQs and PFQs. We have combined those into one alternative for this document, fishing quotas, and so under both IFQs and PFQs, both shares would be distributed and then annual allocation would be distributed that is the pounds represented by that amount of shares, which is a proportion of the quota for the given quota, for that year's given quota.

The IFQs, under this Alternative 2, that's similar to the commercial programs that we have in the Gulf of Mexico now, the PFQs there, the difference being the shares would be attached to the permit and not distributed to the individual, like the 2a.

Now, for the charter vessel fleet, this was both a recommendation of the advisory panel and the council adopted it and added it to the document. The AP expressed preference not to use these durable shares, but to have allocation calculated regularly, every year.

In discussion with the National Marine Fisheries Service staff, we are going to propose alternatives to the council that might not do that every year, but every two or three years, because it would be a very timely, calculated process to calculate this every year, but the idea behind this is that we don't have the landings histories for these individual vessels.

The charter vessel operators that sit on our AP expressed concern with some of the consequences that can result as vessel permits move or participation changes, and so they expressed support for this program that did not use the shares and allocation, but rather only an allocation-based approach, and so that's the Alternative 3 that we have named it permit fishing allocation. To distinguish for PFQ, we're just going to use shares and allocation.

That's Alternative 2 and Alternative 3, and then there you see Alternative 4, harvest tags. This is another approach that the council is considering of a stand-alone harvest tag program. Harvest tags could also be used as an enforcement validation tool underneath either of the options of Alternative 2 or Alternative 3.

When you're talking about calculating the allocation on a regular basis and distributing it, there is very little difference between the PFAs and the harvest tags. It would be a different level of structure in the system, likely, for how it would be distributed.

Here, you have the four alternatives for this Action 1. Underneath the Alternative 2, 3, and 4, we have divided the document into additional sections that pertain to that allocation-based management approach only, and so the Section A includes three actions that address any one of these programs selected.

Action 1, the council would pick which approach it wants to take, and Action 2 will address program participation. Action 3 addresses distribution of the quota, and I will go through each of those briefly, and then the document moves into Section B. If the council selects a fishing quota program, the document includes actions for a transferability of shares, transferability of allocation, and caps on shares, as required by Magnuson.

The Section C would provide actions and alternatives to support a PFA program, if that's the council's decision, and, there, we've provided preliminary actions for the transferability of allocation and caps on allocation, because, under this one, there is no shares. There is only the allocation.

Then, finally, the same two types of actions for the harvest tags under Section D, transferability and caps on the tags. That's Action 1. That's the decision point of which type of program to select if an allocation-based management program is going to be selected. Let's scroll down to Action 2, which is on page 20.

Similar to Amendment 42, there is an action provided, as requested by the council, to allow participation in the program to be voluntary, to be optional. Here, of course, the Alternative 1 would assume that everybody would be in the program, everybody is automatically -- The program applies to all charter vessels with this permit that are not, of course, in the headboat program.

The Alternative 2 establishes the voluntary program and provides three options for when people could join or leave the program, only at the beginning, at the implementation of the program, every year, or every three years, and, of course, the more

frequently you allow people to join and leave the program -- That may not be possible at all if the shares are used, if those quota programs are used, and it could just make the annual allocation programs a bit more complex, but the council does want to consider allowing this type of flexibility for participation in the program.

Then, finally, Action 3 is on page 22. This action addresses how that charter quota that would be assigned to this program would be distributed among the charter vessels, keeping in mind, again, that we do not have -- In contrast to Amendment 42, we do not have landings histories for individual vessels in this program, and so we have to come up with some other proxies to represent this type of how landings could be distributed around the Gulf.

We have several alternatives here and we are still -- Again, the council is in the process of refining the alternatives and removing and adding alternatives, and so Alternative 2 would distribute the quota equally among all the charter permit holders, 1,247 of them.

Now, in the introduction, you saw there were some tables in there that showed that you had varying passenger capacity and you have varying proportions of the quota that are landed across the Gulf, and so Alternatives 3 and 4 and 5 get at those other components.

Alternative 3 would distribute the quota based on passenger capacity, and so there’s actually an example provided in the box on the next couple of pages that shows how that would be calculated, using units. Alternative 4 would distribute the quota based on tiers, and so it would aggregate passenger capacities in lumps, in tiers, all the six-packs getting one unit and seven or greater getting two units, under Option 4a. Then 4b is dividing those vessels with a passenger capacity of larger than seven, breaking them down into two or three units.

Alternatives 3 and 4 are both looking at passenger capacity of the vessel. Alternative 5 then switches to this regional perspective. Now, we don’t, again, have the vessel landings by vessel, but we do have regional proportions of the quota that are caught, and so those regions are provided in the Chapter 1, and there is two options provided for the years that could be used that the council is currently considering for allocating among the charter vessels.

Alternative 6 combines these approaches of equal distribution,

using passenger capacity, and using regional distribution. Alternative 7 is required by Magnuson that the council consider distributing limited access privileges by auction, and Alternative 8, similar to Alternative 6, mixes in auction with any of the other preferred allocation approaches, and so, again, this an opportunity for the council to look at different ways and mixes of approaching distributing allocation to charter vessels.

Those are the actions that apply to all of the management programs, if they select an allocation-based management program. The remaining sub-actions about the caps on shares, the transferability, are currently very similar to what was in Amendment 42, and so I won't go over those in great detail right now, unless there is any questions, and I will turn it back over to Mr. Chairman.

CHAIRMAN BARBIERI: Thank you, Ava. That was very, very informative, and so I will open up the floor for any questions or comments from the committee regarding Amendment 41. Kai Lorenzen.

DR. LORENZEN: Thank you, Mr. Chairman. I have a question. We have many issues in front of us here that lend themselves to some level of scientific or economic analysis, for example different ways of allocating shares, and I was wondering what the council is planning and doing in terms of further analyses on these.

DR. LASSETER: At this time, I'm not sure of any particular analyses that are going to be conducted outside of what staff will be -- Staff will be providing an analysis of the alternatives as we get to that point, when we get towards a public hearing draft.

DR. DIAGNE: As mentioned, both of these amendments are in the very early stages. That's the reason why you don't see any analysis in the document, but, through the normal development process, we have our IPTs, the working group, if you would, and within the IPT, we have members from the social science group.

The Southeast Fisheries Science Center is part of it, as well as National Marine Fisheries Service, and so, as we proceed, we are going to sit down and look at the analysis needed to look at the potential impact, if you would, of each one of these, from the allocation to the component as a whole to the individual distributions, and then we will see, based on available data, the analysis that we'll provide to support the council's

decision.

CHAIRMAN BARBIERI: I have Ken and then Joe and then David.

DR. ROBERTS: Thank you, Mr. Chairman. A question about what is the orientation of the auction? What is it designed to do? Is it designed to raise money, more revenue, or spread things out on the basis of more powerful boats who are able to bid higher or get a value, de facto of a particular fish, just generally?

DR. DIAGNE: Yes, in general -- I mean the first thing, perhaps, is that it is now a requirement of the Magnuson Act that when one designs a limited access privilege program that auctions be considered as a method of initial distribution of the harvesting privilege, and that is the primary reason why we consider these in these documents. Moving forward, any LAPP in its design would have to consider auctions.

Now, whether the council, at the end of the day, would decide to go this route or not, that is a decision that has yet to be made, but obviously if one were to auction harvesting privilege, then you would collect some revenues, essentially, and those would be turned into the general fund. It doesn't come back, necessarily, for the management of catch shares, but it would just be sent to the general fund.

CHAIRMAN BARBIERI: Thank you. That was a good question. David.

DR. GRIFFITH: Ava, you said there is no history of landings in this industry, and that -- With the commercial IFQ, that was a real contentious issue, the years they chose and all that stuff, and so these options here under Action 3, this is the way you're going to -- I mean these are the proposals to determine how to allocate at this time? I mean isn't there any data on landings from the charter boats? None at all?

DR. LASSETER: We do have -- Part of the Marine Recreational Information Program, MRIP, does a for-hire survey, surveys the for-hire vessels, but the system does not record individual vessel landings. That survey is used to estimate the recreational landings, more broadly, and so we can receive the estimates for the charter landings at a county level, and we have aggregated them according to the way the MRIP survey does, and that's provided in the introduction.

We can see them by -- We have them available by state, those smaller states. We can break Texas down, I believe, and we have

provided them for three regions of Florida, the Panhandle, going from Escambia to Dixie Counties, the Peninsula, Levy to Collier Counties, and then the Keys separate. If you look at those landings earlier in the document, I want to say page 7, Table 1.1.4 and 1.1.5, we have updated them now to include a broader range of years. You can see, regionally, about what the landings are, but it's not at the vessel level.

CHAIRMAN BARBIERI: Ben and then Paul.

DR. BLOUNT: Thank you, Mr. Chairman. This follows up somewhat on David's question or concern about how allocation quota might occur in the absence of landings data, and it seems, to me, that that would almost argue against an IFQ or a PFQ system or a quota that could be allocated on a simpler set of bases, and one where transferability issues wouldn't come in. That's just an observation on my part, but I keep thinking of how complex this could get if you did have transferability within this system, where you're operating on two or three boats sizes, as opposed to landings. Thank you.

CHAIRMAN BARBIERI: Paul.

DR. MICKLE: Thank you, Mr. Chairman. I think Dr. Griffith is right that that issue of the history of catch has gotten really sticky since the last time we went through this, and with the potential reporting programs by the states being certified, it could add a lot of data that's obviously needed, but it's going to add a lot of argument as well, and so I think we need to keep this on the radar and identify that now, at this early stage.

CHAIRMAN BARBIERI: Yes, Steven.

DR. SCYPHERS: I had a general question about as both of these amendments move forward. Will it be somewhat of a tiered process, where, after the initial decisions on the early aspects of how the management system is put in place -- It seems like a lot of the other things that come later in the actions will be conditional on the early decisions, and will the scoping meetings and feedback system be set up to allow anglers to have that initial preferences set in place, when they can then start thinking more specifically?

DR. DIAGNE: Yes, in short. Essentially, as we go through the development process, this is going to take the council several iterations. Through a public input process, then people would make their choices, if you would, and preferences known, as the council refines, until we get to final action.

A final thing though is these limited access privilege programs are subject to referendums, and so, essentially, before they can be implemented, the participants would have to vote, and a simple majority of them would have to approve this program, too.

DR. LASSETER: I did actually forget to mention that, that the Magnuson-Stevens Act does require, for anything that's determined to be an individual fishing quota program, which our preliminary guidance from NOAA GC is that even the PFA, the permit fishing allocation program, or harvest tags -- She believes, at this time, that they're going to qualify as essentially being an IFQ and will trigger a referendum amongst substantial participants in the fishery, and so the council and NMFS will need to determine who that is and what that looks like.

CHAIRMAN BARBIERI: Thank you, Ava. Any other questions or comments for Ava and Assane regarding -- Walter.

DR. KEITHLY: Thank you, Mr. Chairman. I want to just follow up on Assane's question to us about cost recovery fees. Looking at it from a broader perspective, we have met -- The Socioeconomic Panel, over the years, has met several times regarding the issue of allocation between the commercial and recreational sectors.

Certainly the price of annual allocation provides useful information on the value of the species, at least to a component of the recreational fishery. I'm not saying that all recreational fishermen are the same. Those on headboats may be different than the private recreational fishermen, but it seems, to me, that that information on the price of allocation is very relevant information that can be used to begin addressing allocation issues.

If the fee is based on that allocation price, I am concerned that you may have an incentive for the vessel captains to not accurately report that price correctly, since the lower price they give, the less fees they would have to pay, and so it's just something to keep in mind, that if you go with an allocation price as the basis for your fee that you're maybe encouraging the captains to underreport what that price actually is, unless there is a way to verify it somehow, and I don't see how you would be able to do that.

CHAIRMAN BARBIERI: Yes, Assane or Jessica.

DR. STEPHEN: I just wanted to mention, in relation to that,

that we do have a problem in the commercial with underreporting of allocation prices as well as ex-vessel prices, and so that's something we're aware of, and I'm glad Walter brought that up.

CHAIRMAN BARBIERI: Assane, would you like to add to that?

DR. DIAGNE: No, Mr. Chair, and thank you.

CHAIRMAN BARBIERI: Yes, Sherry.

DR. S. LARKIN: I like these two documents, in that this is being developed and thought about. One thing that strikes me though, because when you think about what it is that you hope to accomplish in five years or ten years, what metrics are you going to look at to say if this was a success or not, I keep going back to, and I think that's really important, is the stated purpose and need.

I think one of those is fleshed out a little more than the other. It's a little more fleshed out in 42 than 41, but just thinking about when you make all these choices about how to measure or how to do cost recovery, how each of those addresses each of the objectives stated in the purpose and need -- Like who is it that we're hoping to benefit economically from it, I like how the one says, look, this is the purpose of enhancing benefits for the sector. That's something that you can measure. I think the more that those purpose and needs are fleshed out, it will be easier, when you think about the millions of options for how to implement the program, that will have an impact on how this is successful and whatever the time horizon is.

CHAIRMAN BARBIERI: Yes, Jeff.

DR. ISELY: I just want to point out, again, that's what driving this whole thing is the overfishing situation with red snapper and the fact that the red snapper season is so short that it's economically impacting both the charter boat and the headboat fleet, and so the goal is to spread their quota out over the entire year, and there will be some pushback from the recreational side on this, and so that's what is driving this whole thing.

CHAIRMAN BARBIERI: A response, Sherry?

DR. S. LARKIN: That's the kind of thing that would be perfect to be in here, because that's not stated. If the goal is to spread out the season -- It may be implied, but those are the kind of details that, if that's a stated goal, it would be good

to have in there.

DR. ISELY: It's kind of the objective, but I don't know how clearly you're allowed to state that, from a political point of view. I mean I'm bringing it up here because what's driving this is not the fact that NOAA or NMFS or the Magnuson Act is trying to regulate the headboat or the charter boat fleet, but that they brought this to us because they're so limited in the time that they can fish and there's so much competition with the recreational fleet during those open periods that it's impacting their entire business, so that they can't make it.

If they can limit the red snapper catch during the red snapper season and then spread that out over the calendar year, then they're allowed to use that to entice anglers to come in. The pushback is that, if I'm a recreational angler, I'm going to fish hard during the recreational season and, as soon as it closes, then I will start going out on the charter boats or headboats and catching more red snapper, so I can extend my benefits personally throughout the year and I can personally exceed what would be my limit, and that's where the tradeoff is coming in, in terms of the socioeconomics.

The cost recovery is strictly a function of Magnuson-Stevens that says if you're going to have a limited entry fishery that you have to extract some rent, and so that's a side issue for this whole thing.

The charter boat/headboat designation is another side issue, because they're operating quite a bit differently, and the charter boats have wanted to not be lumped with the headboats for these same sort of issues. They want their own separate allocation, and, right now, they're all being managed as a recreational fleet, even though they are commercial, because their catches aren't sold, and so that leads to the issue of ex-vessel value when none of the recreational catch is sold.

The people on those boats take their catch home, and so the captains of the headboats and charter boats are not going to determine a price for those fish. They're only going to count the number of fish that leave their vessel.

CHAIRMAN BARBIERI: Thank you for that, Jeff and Sherry. I mean this is, I imagine, exactly the type of input and discussions points that staff are looking for in terms of clarifying the document or expanding the scope of information that's in this document. Any other questions or comments regarding Amendment 41 or 42 that you can provide to Assane and Ava? Seeing none, I

think that we can complete -- If Assane and Ava feel that they have got enough information from the committee -- I think this is the first exposure that the committee has to these amendments, and so we're going to see them again in the future, as they develop some more. There will be other opportunities for community input. Before we go to the next item, which is the Market Power Analysis for the Gulf IFQ Programs, let's take an early break and return at 10:45.

(Whereupon, a brief recess was taken.)

CHAIRMAN BARBIERI: I would ask committee members to return to your seats. Our next agenda item is sort of a continuation of the discussion that we have started here regarding IFQ programs for the Gulf, or potential IFQ programs for the Gulf, and we're going to have Dr. Travis and Dr. Mitchell give presentations on the Market Power Analysis for the Gulf IFQ Programs. If you guys are ready, let's go ahead and get started.

MARKET POWER ANALYSIS FOR THE GULF IFQ PROGRAMS

DR. MIKE TRAVIS: I am just going to do the introduction. Glenn will be doing the presentation, since this is his report and analysis, and just a little bit of background. Sherry is not here, but, kind of going back to what she said about looking at how you set up these types of programs and the importance of looking at are certain components of the programs going to achieve the goals and objectives that you set up for the program, this analysis directly relates to that idea.

We are required, in all of our LAPPs, to establish caps or limits on shares and/or allocation or landings. There's been some discussion about that recently, and the purpose, the primary purpose, not the sole purpose, but the primary purpose of these caps is to constrain market power, to ensure that no particular entity, whether it's an individual, business, or some other entity, is able to exercise control and markets. Markets could be the product markets, the markets for annual allocation, and the markets for quota shares.

By market power, and, of course, Lee can correct me, because he authored one of the more important documents on this subject, but market power simply means that you have the ability to control or manipulate prices in that particular market, and so the purpose of the analysis is to see if the caps that we set up for the red snapper and the grouper/tilefish programs are doing what they're supposed to be doing.

Just as a little bit more background, remember that, for red snapper, we do have a cap on quota shares. We do not have an allocations or a landings cap. For grouper/tilefish, we have a cap on quota shares as well as an allocation cap. With that, I will turn it over to Glenn.

DR. GLENN MITCHELL: Thank you. I will be going through a presentation that I have lifted some of the cogent points of my analysis, and there is a more detailed report that should be available to everybody. None of the numbers from the report are in the presentation, but if we want to delve into them in the time that we're allowed, then I am certainly eager to do so, if you would like, and I will try not to suck up the extra thirty minutes we were allocated. I will try to finish on time, but it's up to the Chair if you want us to go on further, if this is productive.

I have really got five parts of my presentation here. I will give a quick overview of the fishery and the focus of the scope of my analysis. Three of the many, and most important, points of the statement of work that I was engaged to do are the relevant market analysis, the market power analysis, and the scale efficiencies. Then, finally, my recommendations that came out of this analysis for the ITQ program, in terms of accumulation limits going forward.

What I will try and do is pause roughly at each of these five categories and see if there's questions and then also entertain questions at the end, if there is time.

What we have here is a situation where we have regulatory boundaries, both geographic and product-type boundaries, and they aren't necessarily the same as the economic markets that those regulations interact with and those products are sold in. In this particular case, I am looking at the Gulf of Mexico reef fish ITQ program, and this is the third opportunity I've had to do one of these analyses, which is very interesting, to me.

My research background in grad school was in resource economics and tradable pollution permits and how these spurred innovation and so on, and I moved into antitrust analysis after I left grad school and went into economic practice, and I learned a lot about markets and relevant markets and things like that, and this is one of the few opportunities I have to combine those interests together, and so I learn a little bit more about fisheries each time I do it.

It's nowhere near the depth of institutional knowledge that this

group has, and it tends to be a little bit more scattered, because I learned a little bit about surf clams and a little bit about similar types of groundfish in the North Atlantic, and now I'm learning about reef fish in the Gulf of Mexico.

A number of ways that we initially, just the first pass, look at the economic analysis, we see the overlap of the regulation versus the markets. Just some examples here of the Gulf of Mexico regulatory region is one peninsula, one thin peninsula, away from the South Atlantic regulatory region, and, in terms of markets, the fish that are caught in the two different areas are very similar and might very well be economic substitutes for each other, in terms of where they're sold and how they're used.

The reef fish that are caught in the Gulf of Mexico or the South Atlantic or elsewhere may or may not be substitutes for other seafood that is harvested in the same regions and often with the same vessels. The ITQ regulations apply only to a subset of the reef fish that are harvested in the Gulf of Mexico.

There are several categories that we'll talk about, and you're probably familiar with, but primarily red snapper and red grouper are the largest of the ITQ-regulated fish, and there are several other species that constitute a much smaller portion of the regulatory market, but then there's also a large harvest of other reef fish, other kinds of snapper and grouper, that aren't included in the ITQ program.

There is imports and exports, and, here, we have the traditional meaning of imports into the U.S. from other countries, but, when we're looking at this analysis of what's going on with the Gulf of Mexico, we also have to consider imports, so to speak, from other areas of the country or exports into other areas of the country and whether the markets we should be thinking about are geographically larger than the Gulf of Mexico, larger than the United States, or somewhere in between.

As I go through this presentation and this report, I will be using a couple of terms that may or may not be commonly used for you folks, but I will be talking about quota share as the fixed portion of the annual quota that is assigned to each of the participants in the industry, and so these would be the folks that have the five-year history of harvest of landings that were used to determine the initial allocation at the beginning of the program and then could transfer that to other folks at any time over the course of the program.

I will also be talking about quota allocation, which would be

the annual privilege that flows from the quota share holdings and that also can be transferred to different individuals, different businesses, and this is constrained in time, in that it only applies for the year that the allocation is valid for.

The analysis that I considered looks at red snapper from the beginning of this program in 2007 and looks at the grouper tilefish categories from 2010, and all the data I looked at ended in 2014. Some of the articles and other information came out in 2015, but most of the analysis focuses on 2010 through 2014, with a little bit more for the red snapper in earlier years.

Finally, I will be focused on whether accumulation limits affect the markets, affecting the transactions, accumulation of either quota share or quota allocation, and there can be a lot of other ways that market power could be exercised in these industries, and this particular analysis will focus on just the ways that relate to accumulating being a lot of quota share or a lot of quota allocation, because that's what the limits required by regulatory details that I don't know too much about, but they required me to focus my analysis. Any questions before I dive into the relevant market? Okay.

From my perspective, whenever an economist wants to define a relevant market, from an antitrust perspective, we need to consider the activity that is potentially anticompetitive. A lot of relevant market work is done based on horizontal merger guidelines that the Department of Justice and the FTC use to regulate mergers between competitors.

In that particular situation, the activity under consideration is whether the merged firms will, together, control enough of the market where they can engage in market power that they didn't have prior to the merger. There are other contexts to look at market power and relevant markets. For example, in cases, monopolization cases, we're often looking at situations where a firm already has a very large share of a market and may have already controlled the price to a point where it's above what the competitive price would have been, absent some sort of activity that might have been anticompetitive, and we have to consider the relevant market absent the activity that has already occurred.

Here, the activity that we're looking at is the accumulation of quota share or quota allocation, and I am going to take that activity and look at it on a number of different levels of market definition. First of all, directly with quota share and

quota allocation of markets, those privileges can be transferred among individuals and businesses and so those themselves have markets, two different markets, one for quota share and one for quota allocation, potentially relevant markets in and of themselves or subsets of those markets that could be relevant markets.

Extending from that, the next level would be the landed fish that comes from the use of the quota allocation, and I think this is probably the area where most of the attention is, most of the focus is. There is some concern about whether market power exists within the quota share and quota allocation transactions, but I think a lot of the concern that I hear about and read about is whether the quota program can lead to market power and landings, and so that's definitely going to be an area of consideration.

It could be that the species categories within the ITQ program could be broader, to include all ITQ-regulated reef fish or all reef fish or more types of seafood or different geographic regions.

What I have excluded from any more detailed analysis, but I discuss briefly in the report, are relevant markets that are smaller than the IFQ categories, the IFQ species categories, and so an example of that might be red snapper of a certain size that's useful for fillets or red snapper of a certain region, say Texas rather than the Florida coast, and I have excluded also, further downstream or upstream markets, the transactions occurring after the dealers and processors, on down to the consumers, and also transactions and the factors going into the production, into the harvest, which is vessels and gear and so on.

The primary reason to exclude those is because it could not construct a theory of harm to competition that was related to accumulation of quota share or quota allocation. There are plenty of theories of harm that we could construct in those different upstream or downstream markets, but none of them that related specifically to the focus of this analysis.

CHAIRMAN BARBIERI: Glenn, if you don't mind folks interrupting to ask questions --

MR. GILL: Thank you, Mr. Chairman. Sorry for interrupting, but, then again, I'm not. Dr. Mitchell, could you clarify -- If I understood you correctly, the landed category includes the dealer or downstream of the producers, but not further than

that. Then the question, for example, is say a dealer had shares and also lands category, and so the aggregate is higher. That's what you're including in the landed category, and is that correct?

DR. MITCHELL: If I understand the question correctly, the landed fish category, and I'm talking about the transactions that occur between vessel operators and dealers, when they bring the fish in from the harvest. That's the slice of the market that we're looking at there.

If there are further transactions between dealers and processors or other customers that happen after the vessels have unloaded their fish, that I am not looking at. The use of the quota allocation occurs at the first category, but not at the second category, although dealers themselves may be involved and may be owners of the allocation that gets used in the first transaction.

DR. TRAVIS: If I could follow up on that just a little bit. We have data directly with respect to transactions, transfers, within the quota allocation market, the quota share market, and the sales markets from the boat to the dealer. We typically do not have transaction data from dealers to processors and other entities further up the chain. If we had had that data, we could have looked at that, but we don't.

DR. MITCHELL: Now, I am going to move backwards. We started with the landed fish and we'll move to the quota share and quota allocation, and the way I like to approach the relevant market analysis in all of my work is to gather a good deal of qualitative information and analysis and try and get a good sense, qualitatively, of what the relevant markets appear to be, based on how the transactions occur and what the industry participants believe to be the case, and then to augment that with the more detailed data analysis, whenever possible. We've done both here. The results are mixed, but we'll get to that.

In terms of the qualitative overall look at the markets for landed fish, we see right away that you could distinguish between different species in terms of their product characteristics, certainly between reef fish and other types of seafood and other types of food, and those product characteristics may or may not be sufficient to differentiate demand enough to segregate into different relevant markets.

There is also end use differences, in terms of especially for the different sizes of fish that are caught, whether they're

useful for fillets or other reasons, or other uses, where they're delivered and when, in terms of whether they're going to become fresh product or frozen product, and other differentiating factors like that.

That could lead to subcategories within the species. However, because of the focus on the ITQ accumulation limits, I'm not going to be looking at those subcategories.

We also have to consider, when we look at relevant markets, the geographic delineations of the market. In the case of the Gulf of Mexico ITQ-regulated reef fish, we have a good geography to start with, to think about starting with, which is the Gulf of Mexico, and then, as I mentioned before, we have to consider whether harvest activities occurring elsewhere are interacting with the harvest activities in the Gulf of Mexico and whether there is reason to delineate further submarkets within the Gulf of Mexico, given that we're looking at accumulation of ITQ that pertains to the entire Gulf. I say accumulation of ITQ, and that's my shorthand for accumulation of quota share or quota allocation.

Another factor that comes into play here, a lot more so than in a lot of other relevant market analyses, is the supply substitution possibility. By that, I mean, first of all, that relevant markets are distinguished, in economic terms, by the differences in demand, by the other products that compete sufficiently with a product to constrain its prices, absent anticompetitive activities, but we do consider supply when it interacts sufficiently to affect demand.

In, for example, the horizontal merger guidelines, it's kind of an afterthought whether there is supply substitution among different industries that could come in to compete, but, here, we have harvesters that are engaged in multiproduct activities, where they are, in this particular fishery, harvesting multiple species at the same time. Almost all of the data shows that vessels are harvesting at least two different species on a regular basis, and often more than that.

If you have, for some reason, an increase in market demand for a particular species that happens to be harvested at the same time, because it's in the same place, as another species, then that might lead to an increased harvesting activity for the other species and a change in quantity related to the price increase of the first species, and so that leads to changes in the product transactions that are attributable to price across the different species that only occur because of the supply

complementary, the fact that they're both harvested together.

Taking all of these considerations into account and having access to a lot of really good initial ethnographic research on the industry that the service was undertaking and all the publicly-available information about the industry, it was clear that there could very well be very broad markets for the ITQ-regulated reef fish.

There is a lot of imports, a lot of exports, a lot of very similar products from other locations, including the South Atlantic, as well as parts of the Gulf of Mexico not regulated by the United States, and overlaps across, outside, of the ITQ-regulated portion of the reef fish.

Kind of the starting hypothesis with it would be that there would be some relatively large markets that would be inclusive of all the ITQ-regulated reef fish in the Gulf of Mexico, and possibly bigger than that, but I wanted to then turn to more empirical analysis of quantitative data, to see if we can support that or find something different, and so we did some demand analysis.

This is some of the data that Mike mentioned, that we were able to look at the data that's kept by the service on transactions among the ITQ share and allocation, as well as the landings that go with the allocation use, and, in addition, the logbook data that includes some species outside of the ITQ-regulated program, both in the Gulf of Mexico and in the South Atlantic that we have some access to, and we also have some cost data on portion of the logbook participants that chose to participate in the cost survey.

In the practical question, we were faced with lots of data, which we haven't had in some previous fisheries analyses that we looked at, but it was how to aggregate it in a sensible way for a demand analysis. With red snapper and red grouper, there are a lot of transactions, and it would make sense to aggregate, much like we do in consumer products, usually on a weekly basis, by location and do some very extensive analysis of transactions aggregated on that basis. That gives you a lot of transactions, a lot of data, and it allows you a lot of flexibility with the econometric techniques that you use.

Unfortunately, that would not apply to entire scope of the species that I was looking at and the other species in the ITQ-regulated program, the tilefish particularly, and sometimes the gag grouper, have a lot more intermittent data, often because

they’re harvested more intermittently, but also because there is some filtering that we had to do with the data, which I could get into if there are questions about that, to ensure that we only had real prices for real transactions.

We ended up with kind of a compromise of doing monthly aggregation over the five-year span of all the regulatory programs, 2010 through 2014, which is sixty data points, which is good, but not a lot, and it kind of limits our flexibility, in terms of finding relationships within the data.

For those of you who are into the econometrics, we performed a log linear demand system econometric analysis and, as those of you who are into this know, there are limitations and econometric reasons not to believe the numbers that come out of that, and so we looked at endogeneity and simultaneity using two-stage and three-stage least squares on that same data, and we also did some initial analysis with demand systems that use shares, as opposed to quantities, in the dependent variable in the linear approximate almost ideal demand system.

What we got out of all of that was almost the same in all cases, and so it didn’t really matter that much, given our sixty data points, and a lot of the more advanced stuff that I just rattled off real quickly really requires a lot more data to be reliable, and so even if it had shown something different, I probably would have been a little bit leery about using it, but it didn’t really show anything different. The end result to the demand analysis was not very informative.

The red snapper, we did get its own elasticity that made sense and some cross-elasticity with other products. I think all the other species groups, we didn’t get anything that made sense. We didn’t get a lot of significant results. There was just too much noise in the data to ferret out the substitution among the different species.

There is a couple different ways to interpret that. One might be that that could be a confirmation that there is one broad category of reef fish, with the possible exception of red snapper, or it could be that we just didn’t have enough data to pick out the individual different demands for the different species, and so we proceeded with our analysis, or I proceeded with my analysis, based on the assumption that it’s probably a broad market, but we need to consider the possibility of smaller markets, down to the species categories, within the ITQ program.

Then, quickly, we can turn to the other markets, the more direct

markets, for a relevant market definition, which would be the quota share and the quota allocation. The quota share market is interesting among these three that we're looking at, in that it's most like a financial investment, unlike fishing production.

If you think about what quota share gives you, it gives the right to receive quota allocation, which has a price. You don't know what the price is going to be ahead of time, but you have some expectation of what it's going to be. You don't know how much you're going to get, because the quotas themselves change from year to year, but you have some idea of you will get a certain amount of quota allocation at some expected price.

Much like many other financial instruments, if you buy quota share or choose not to sell it, you're investing in something that's going to give you a financial return that you're not certain about, and there's lots of different investments that have those same characteristics.

One thing that differentiates quota share from other types of financial investments is that your expectations about the allocation prices and allocation amounts that you're going to get may be largely informed by your experience within the industry, as opposed to somebody outside the industry, and so, either because your own experience or because of your connections to other people within the industry, people who are participating in the industry may have substantially more information for trading quota share than people outside the industry.

That, in and of itself, is probably enough to distinguish it from other financial instruments and other types of investments. However, I think anything beyond that is stretching it to the point where there is really no reason to differentiate, in terms of demand substitution, and so there is no reason to differentiate between the different types of species for quota share transactions.

You're in the industry and you know what's going on or you're not in the industry and you don't, but, once you're in the industry, I'm going to make the assumption that you know enough about the different types of species that you know whether to buy or sell or hold your quota share. That leads to the conclusion that the relevant market for quota share is the entire Gulf of Mexico IFQ program.

Quota allocation kind of falls in between quota share and landed

fish, in that it's not really a physical instrument. It's a financial instrument as well, but it has a limited time that it's useful, and it's directly tied to production in a way that quota shares is much more loosely tied to production. It's tied to quota allocation is tied to the immediate production decisions that you're making from day to day and week to week.

It could be treated much more like an input into production and we can analyze the demand for quota allocation, but, when we do that, we have to be to be careful not to treat it like any other input into production, because quota allocation is not substitutable for other types of inputs. You can substitute use less allocation and more bait, for example, or more fuel.

What you can do is substitute different types of allocation for each other. For example, you can choose to change your vessel targeting and get different species, in which case you're using less of one type of quota allocation and more of another, and so it's possible that there is substitution across different quota allocation species groups, and it's possible that there is not and that they should be treated separately.

Again, we tried the demand system approach to this, because we have basically the same information on quota allocation transactions as we do on landings transactions, approximately sixty data points aggregated monthly, with somewhat more holes there, because there is a little bit more sparse data on quota allocation transactions, but, again, no definitive results for the demand analysis, and so that did not really help form the opinion.

I am left there with the conclusion that the relevant markets for quota allocation, we can assume are IFQ species groups each year or possibly an aggregate of all groups within any given year.

That's a lot of attention to relevant markets and probably more than half of my presentation, mostly because it was required as part of our analysis. What we really need to know is whether there is market power, and sometimes we can even skip over relevant markets to get to that, but that's what we came up with. Before I move on to market power and the rest of it, are there any more questions, quick questions, that come to mind right away?

DR. KEITHLY: Going back to the output demand equations that you estimated, generally when we model -- I am asking this because I have a project that I'm struggling with, but when we estimate

demand for dockside landings and so forth in the absence of an IFQ program -- If you look at it on a monthly basis, you usually see that that's an inverse demand function. Why did you choose to estimate it as a quantity-dependent demand function in this case? Is it because there's an IFQ program in place?

DR. MITCHELL: The question is why use the quantity as the dependent variable instead of the alternative being to do the inverse demand function with the price, and I don't want to overstate what we did. We explored some alternative specifications early on in the process and the data would allow us to do it either way, and so it doesn't really matter. It is not, as you speculated, because it's an IFQ program. That wouldn't have affected whether to do it one way or the other.

I think we were -- Early on in the process, I decided that we were getting reasonably consistent results either way, which were not very good either way, and we wanted to explore doing the linear approximate almost ideal demand systems and expand our budget on that and see if we could get anything productive, and that didn't really pan out, and those are quantity shares, typically, although they could could be revenue shares as well.

The answer is our early analysis suggests that it wouldn't have made any difference, but we didn't go very far into that. There could be another course to take.

DR. KEITHLY: The second question, is you state in your document, is imports dominate these markets. I forget what the numbers were, thirty-million pounds of red snapper imports or whatever, yet, in your demand analyses, you simply used South Atlantic landings as substitute products. Is it because you did not have the imports broken down to specific species, other than grouper or whatever, that you did not include imports, because it seems that that may have been the more relevant variable in this analysis.

DR. MITCHELL: To answer that question, and that's a very good point, the imports dominate -- Well, the imports are a large part of U.S. consumption, is what I could say. I can't say whether they dominate the Gulf of Mexico reef fish landed fish market, because we don't have any data on specifically imports that are sold to the same places that the Gulf of Mexico reef fish are sold to, and so I suspect the imports have a large influence and are part of what are driving the lack of results within the Gulf of Mexico reef fish, and it would require a lot more data work, some of which is available by species on the import or by species category. It could roughly map to some of

the species categories in the ITQ program. It's not exactly the same, but it would require additional work, and that might pan out on some larger market analysis.

DR. KEITHLY: One more question.

DR. MITCHELL: One more question. You only get three questions.

DR. KEITHLY: You estimated OLS SUR and then two or three-stage least squares. You mentioned that two and three-stage squares gave you very similar results. That's not surprising, because you're using the same exogenous variables or all right-hand side variables, and I shouldn't say exogenous in this case, in which case you could have identical results, or should, I would think. Did you get significant differences between the OLS results and the simultaneous equation results?

DR. MITCHELL: No, adding the -- For those of you who aren't in the know, or maybe you all are, but adding the simultaneous kind of supply equations or other equations into the system can kind of help you tighten up the results and get stuff that you wouldn't have seen just with the demand equations. In this case, we added cost of other inputs, and it didn't change anything.

DR. KEITHLY: Thank you.

DR. MITCHELL: We did that kind of because we have the cost variables from our linear analysis that we were talking about, and that was relatively easy to bring those in. We also brought in a couple of variables having to do with imports and overall U.S. consumption, but those didn't make any difference either.

I was kidding about you only get three questions within the presentation, but if there's time at the end, I will definitely answer more, or you can transfer your allocation of questions from other participants who aren't using theirs, but you have to determine your own prices and report them accurately.

Let's talk a little bit about market power. What we would like to do is to identify when people are controlling prices in a way that they wouldn't be able to do in competitive markets. We can sometimes see that through their direct behavior or we can sometimes see that through the profits that they're making, although that's not necessarily definitive, but what we usually end up doing is falling back on our looking at the overall structure of the market and seeing whether the activity within that structure is more consistent with the exercise of market

power or with competitive activity, and that's what I did here.

I assessed the concentration, and I saw variations in concentration among different species or among different points in time, and I was trying to see if that was related to changes in pricing or profits overall, and, try as I might, I could not find any evidence of market power being exercised in any of the possible relevant markets that I talked about earlier.

We used the ITQ demand data to measure concentration for landed fish and also for transactions and quota allocation and quota share, and those are in Table 6 and 7 of the report, I believe.

In doing this, we also made use of another set of data that was made available to us. When people participate in the ITQ program, that generates data on the ownership of the accounts. They can be owned by businesses or by people or by businesses and people, and that allows the possibility for somebody who might have multiple accounts, for us to aggregate those multiple accounts together to a single entity.

I don't think this was done in any exact way. It was done the best we could with the data that we had available, but there were clearly people with identical business names or identical personal names who had multiple ITQ accounts, and we could see why that might happen over the course of operations. Somebody might acquire another vessel or another business that already has a preexisting account, and there's no particular reason, necessarily, operationally, to merge the two accounts together into one and then maybe continue operating with two accounts or three accounts or more.

You may have overlapping ownership in different entities. There may be -- It was a little bit in this industry, but more so, we saw it in some of the other fisheries I looked at. You may have financial institutions owning ITQ accounts, because the ITQ was collateral for a loan that then ended up getting repossessed and so on.

What we did was we attempted to use the data that was available to us to, as best as we could, aggregate across the different ITQ accounts into single entities, which made a little bit of a difference in our concentration figures. It was nothing that would change it qualitatively, but, if you look at it by ITQ accounts, it's definitely giving an inaccurately low measure of concentration.

One thing that is definitely missing and that you should be

aware of is that if dealers or processors own businesses that own permits, we're not necessarily going to capture that in our dataset, and so they might be vertical relationships that control allocation or quota share, and we don't have that information available to us.

Again, we will start with the landed fish, and I looked at that both with individual species groups as well as an aggregate for all the landed fish, and found very low concentration figures, both in HHI and also more simpler measures of concentration, who are the largest three or five suppliers.

There are some species groups that have relatively high concentrations for some years. These are small species groups, like the tilefish group, deepwater grouper, but, amongst all of those, and a little bit referring to the next analysis about scale efficiencies, there are no evidence of abnormally high profits or changes in profits over time.

There are some sets where we saw higher concentrations, either by species group or over time within a species group, but there was no change in the level of output or price that could be related to those changes in concentration, and so, even when we saw increased concentrations, we didn't see subsequent changes in price or profitability or output that would indicate market power being used.

Now, that's a little bit of an assumption there, because it's possible that there would have been changes had there not been market power, but you have to then presume that there's some other factor that would have caused changes that were then ameliorated by the use of market power and absent any information on other factors, which we don't see any.

The only big factor that was affecting this industry that we could find was the 2010 oil spill, but, other than that, there are no other particular events that had really widespread impact on the industry. There some red tide events or red algae that had some small impacts, some quota adjustments in mid-year that had small impacts, and we took those into account, and we didn't see any evidence that there was any market power being used for landed fish.

Finally, for market power with a quota share or quota allocation, before getting into that at some point -- This has to be said somewhere, and this was really where it fit, for some reason, but there are in place accumulation caps for quota share and quota allocation currently.

Those accumulation caps can be met without necessarily constraining harvest, and so the harvest amount that an entity can harvest could be higher than the accumulation cap. The way that occurs is two ways. One is if there is multiple accounts that they can harvest and use allocation within multiple accounts. That can certain get you a harvest beyond the cap, but, even if you only have one account, you could harvest beyond the cap just by accumulating more allocation over the course of the season, because you can start off with a small amount and just buy more later and harvest more fish.

It's important to recognize that the concentration figures for allocation and share might not match the landings concentration amounts. It turns out that the allocation concentration was relatively low and the quota share concentration, which is really just the January measurement of the allocation concentration, was also low.

We saw some changes in the quota allocation that could indicate increased concentration, and, again, we did the same sort of analysis. Did that lead to changes in price or behavior? We didn't find anything to suggest that there was market power being exercised when there was slightly more concentration in the allocation, and, with quota share, they were much more limited data, but we also have, for reasons that I discussed in the relevant market analysis, I think a very firm reason to believe that quota share elasticity would be much higher than the quota allocation elasticity, and, therefore, if we're confident that allocation is -- If there's no market power there, and the quota shares are actually at a lower concentration, then I went on to make the conclusion that there is no market power within quota share as well.

I think we then go to scale efficiencies, but, before I do that, does anybody have questions about market power? The end result there is that we didn't find any evidence of market power being used under the current allocation caps that are in place.

CHAIRMAN BARBIERI: Glenn, we have Sherry.

DR. S. LARKIN: I think I have two questions in there. One is the previous slide talked about abnormally high profits, and so could you talk a little bit about how profit was calculated and what was considered abnormally high?

DR. MITCHELL: I will do the first part of the question a little bit more when I get to the next section, because we'll talk

about the costs, and that will lead right into that. The second part, abnormal would be changes over time or across species that are not accounted for by any else other than possibly concentration, increase in concentration, and so abnormal relative to the other species or other times that we're observing the same species.

DR. S. LARKIN: The second one, and maybe it's a little premature for this, but I'm sitting here trying to figure out how this piece of work sort of fits in with other information that we know about this market, and I'm wondering if this is like a 30,000-foot view of what's going on across the Gulf and across these markets and sort of how the results that come out of this help add to the story of potential concentration in the transfer markets.

I mean we kind of know that social networks play a role in those markets, and we have some information on regions, and so I guess maybe it's more of a comment. Is it correct to think that this analysis is looking from the top-down, at like the 30,000-foot view, versus looking from the bottom-up at what's going at locally and -- There's a lot of things different about examining this market from an HHI perspective that's used with other types of commodity-based goods versus looking at a market that doesn't have an official trading platform and doesn't have any formalized structure to it. Does that make any sense?

DR. MITCHELL: Yes, and so I think there's a potential that constraints within the market could occur, so that people could exercise market power in limited areas of the market. Say if it's not a smoothly, efficiently-running market like we think of say the stock exchange, where there is lots of transactions and lots of exposure and visibility into it. In a lot of cases, transactions are occurring through more limited networks, or maybe through nodes that are doing lots of transactions and could, by themselves, do a little bit of limitation constriction of the market.

Those, we did not look at those. We did a little bit of looking at geography and we did a little bit of looking at the identity of the transactors. Do those with higher shares have different prices than those with lower shares, and we didn't see -- There was nothing that was showing up as significant in those limited analysis we did in those, but, to answer the earlier part of your question, it is more of a 30,000-foot look across the whole Gulf of Mexico transactions for the quota allocation and for quota share as well. I will come back to the calculation of profits in a second, actually right now.

The final task before I get to the recommendations, and this shouldn't take more than five or ten minutes to wrap this up, but the final task was to look at scale efficiencies, the reason here being -- Why is this added in this market power analysis? The reason being that if you set the quota accumulation caps for quota share or quota allocation too low, then you might impede operators from achieving efficient scale, and so it certainly was the case in surf clam fishing, where there were clearly economies of scale related to large-scale trawling for surf clams.

I don't immediately see any evidence of economies of scale for reef fishing, but I am not going to assume it just straight off of a qualitative analysis. Instead, we're going to also, again, look at the data here.

What we did here was we used the logbook cost data from the Gulf of Mexico survey participants, which is only a subsample of data of all the costs, but we took those and collapsed into single quality-differentiated product using price indices, and we segregated out IFQs, because it's substitutable with other products, and then we grouped the other inputs into I think three categories and estimated a translog cost function as kind of a rough aggregate estimate of how the industry functions, without differentiating by gear or by types of vessels or so on.

We figured out what is the best -- What is the cost per vessel trip, and, given the substitutability among things like bait and labor and fuel to go places. The result of that analysis was actually surprisingly clear, compared to the demand analysis.

All the proper signs were observed in the data. The cost is increasing as output increases, which is what you generally would want, and, whenever any input price increases, the cost increases, and so those are all kind of checks on making sure that the function is being estimated correctly.

We can take the results of that and get a measure of the efficient scale, the point at which the marginal cost is equal to the average cost, and make sure that that's a minimum and not a maximum. For this case, it was approximately 5,000 pounds per vessel trip. The current average varies across different species, but it's all lower than 5,000 pounds. For all the species together, it's roughly 3,000 pounds, I think a little bit less, depending on the year.

That suggests that the industry is not operating at the most

efficient scale at this point, but it just suggests that. It doesn't really nail that down, because we did not differentiate by different types of gear, different vessels, and different species.

I think it's sufficient to say that the current accumulation caps, which would allow for much higher than 5,000 pounds per vessel trip, are not what is constraining people from operating at an efficient scale, if they're not, and, really, that was the main reason to do the scale efficiency analysis here.

The side product of this was that once you back out the cost of all the other inputs from the average price of the harvest, we come up with a figure that's pretty close to the average price of the ITQs, and so that suggests that, although there is quite a bit of variation among different vessel operators and different species, that, on average, the profit level is pretty close to zero for the industry as a whole, or for the Gulf of Mexico reef fish ITQ harvest as a whole.

Now, people can substitute away from ITQ species and harvest other species, and so there is quite a bit of other species included in the cost analysis, and so it's not that there is necessarily down to zero profits for everybody, but it suggests that there is nobody -- In some further cuts of the data that we looked at, there is nobody making exorbitant profits on ITQ-regulated fish that would suggest that market power is occurring. I think that answers that earlier question.

Then I am going to go quickly to the recommendations that flowed out of this analysis. Starting now with quota share, I didn't observe any economic inefficiency caused by the current caps, and so they're not too low. I think that the analysis argues, I argue in the analysis, that the relevant cap would be for all the species together and not for individual species groups and that 15 percent cap is supported by the data, that that could be a low enough cap to prevent any further concentration than what is already occurring and is occurring without any use of market power, without any evident consequent market power.

If it was deemed necessary to do caps by species group, I talk about 7 percent. That, I would have to update a little bit, because there was an update to Table 7 late in the game here that I did include in the draft, but I didn't include it in my -- I didn't revise my recommendations sufficiently.

The idea of this at a minimum cap at current levels or 7 percent, whichever is higher, is driven by what's the highest

concentration we see in the current quota share analysis and, seeing that we have observed no market power within that highest concentration, it would be okay for any species group to be at that concentration.

At that point, the highest was 775 for tilefish, and so that's about 7 percent per participant, if you have a dozen or so equal-sized participants. The revision to Table 7 increased that 775 to I think 878, and that would correspond to more like a 9 percent cap, and so I'm going to be making that change to the report, but that's if you were to do caps by species group. That's what it relies upon, and it relies upon the assumption that it's okay to take the evidence from one species group, say tilefish, and apply it to different species groups or species, in this case say red snapper, which may be a more difficult stretch that the council may not want to make.

The current red snapper accumulation limit is 6 percent and the concentration figures for red snapper are already much lower than they would be if people were accumulating 6 percent, and so certainly 6 percent is sufficient, and I believe that moving up to the level of the tilefish, which would be 9 percent, wouldn't make that much difference, based on the evidence that I saw.

Then I made recommendations on quota allocation, mostly to point out that only effectively monitoring, periodically during the year, can we expect quota allocation to have any significant constraint on harvesting activity. If there is a concern about quota allocation being used and accumulated in a way that could affect harvesting and relevant markets and market power in the harvesting sector, and if you're going to set accumulation limits for that purpose, it would be necessary to monitor the accumulation of allocation, based on what's available and hasn't been used, during the course of the year and not just at the beginning of the year or at some point in the middle of the year.

I did it quarterly in the report. Quarterly or monthly probably makes sense, something like that, but, given what I did in the report, the quarterly showed that there was increases in concentration over the course of the year, but none that affected prices, and so I don't believe that any allocation caps are necessary. If there must be allocation caps of some sort, if that's the case, then it's clear, from the data, that caps at 9 percent or for the aggregate -- It says 7 here, but it should be 9, and at 10 percent for species groups are supported by the existing experience already.

That was real quick on the end, and maybe not as clear as it could have been, given the change in one of the numbers, but are there any more questions that I should address at this point?

CHAIRMAN BARBIERI: I have Walter and then David and Ken.

DR. KEITHLY: Thank you for the presentation. I have just one question. It's not clear to me what equations you used to estimate the elasticity for quota allocation. Was that done on a monthly basis, similar to the demand, with quantity being the dependent variable again?

DR. MITCHELL: It's the exact same model as the fish demand. It's the same level of aggregation, the same variables.

DR. KEITHLY: But your supply, by definition, available for sale goes down as the year progresses. Can you control for that somehow or did you control for that?

DR. MITCHELL: Extent allocation that hasn't been used I think was the control variable for that, and I think -- So each month, there will be less -- Whatever was the initial quota minus whatever was used in the previous months is the extent allocation supply that's available.

DR. KEITHLY: Is it demand or -- I am being confused. Are these demand equations or supply equations at this point?

DR. MITCHELL: Demand equations with -- That particular variable comes in as a potential endogenous variable for the two-stage and three-stage least squares.

CHAIRMAN BARBIERI: Thank you. I have David and then Ken.

DR. GRIFFITH: Under relevant market quota share allocation, can you go to that slide for a second? It's on page 7, I think. You said something about the relevant market for quota share is all Gulf of Mexico IFQ program. That means you don't differentiate between snapper and grouper at all?

DR. MITCHELL: No, because of the analysis that, to me, indicates that the quota share is simply a financial instrument.

DR. GRIFFITH: Yes, but that's somehow dependent on this specialized knowledge, right?

DR. MITCHELL: Right.

DR. GRIFFITH: You mentioned that, in one case, a financial institution owns shares, and I know of cases where people have inherited shares who aren't fishermen, who don't have this specialized knowledge, or have gotten them in a divorce settlement, and so what happens when that specialized knowledge is beginning to be eroded? Then does this relevant market conclusion not stand up anymore or what?

DR. MITCHELL: Well, as long as there are a large number of participants with specialized knowledge that are able to participate in the market, then I would expect them to be driving the price. Now, I expect there would be participants who are mispricing, because they don't have that information, but they do -- They can observe -- Well, they can't observe prices, and so if there end up being a large number of market participants that didn't have the information, then they would be mispricing, potentially, and losing money. Then you expect the people that have the information to acquire those shares over time.

DR. GRIFFITH: Then I have one more question. I'm sure you're familiar with the term "fish lords" or "sea lords". Based on your analysis, there are no such things as sea lords right now in the IFQ program?

DR. MITCHELL: I am familiar with the term, but I'm not familiar with the commonly-accepted definition of it. There are definitely people that own lots of shares that are not landing. There are entities owning lots of shares, but not landing, but they're not the biggest people that are landing. The biggest people that are landing fish are the ones that have substantial shares and are buying allocation to make up the rest that they don't have shares for. Did you have something to add?

DR. STEPHEN: I was just going to add to the relevant market. We've had a lot of phone calls from people who the person was running it had died, and they call and ask us about prices. We do an annual report, and so they can see what the annual monthly prices were for the previous year within it, and a lot of times we tell them to talk to the people they had been dealing with.

The dealers function, in a large way, in helping the fishermen determine some of the prices, even if they're not directly involved in the transaction, and so there is a community where, if someone has lost a spouse and they're now in charge of it, they can get some sense of what's going on before either selling it or deciding to keep it and fish it through another captain.

CHAIRMAN BARBIERI: Thank you, Jessica. Ken.

DR. ROBERTS: Thank you, Mr. Chairman. Within the last year, there was substantial criticism of the IFQ program because of this thing of people getting rich and whatnot by not even fishing, and I know you just addressed some of that. The question I have is, if you had that information of how much was actually leased repetitively by a permit holder, quantitatively, and it doesn't have to come from the same person, would that in any way be large enough to change some of your conclusions, do you think? If not, do we have enough information that you had available that you could put in your report that would show us how much leased activity is going to certain concentrated groups of people?

DR. MITCHELL: I think, and folks can correct me if I'm wrong, but I think I have the information on who owns the shares and I have the information on where those shares end up getting used, whether they're transferred to somebody else or used by that owner or not used at all, the allocation that flows from those shares.

There is no missing information there. The only missing information would be if there are entities that own multiple accounts that have shares and I don't observe that they own multiple accounts, and I don't think that's really there, but it could be.

DR. TRAVIS: No, that should not be there. The one constraint though, and he did touch on this earlier, is that, although we have complete information on the ownership of the entities that own the shares and the allocation, and so we have great ownership data for the harvesting sector, but, in terms of dealers, that is where we're missing a key piece of information. We don't have information regarding the specific individuals or other businesses that own the dealers and then may subsequently participate in that market. Does that make sense?

DR. ROBERTS: A follow-up. Yes, but, if you had that, would it be important?

DR. MITCHELL: Well, it could be important if there are dealers that have large concentrations that we're not observing.

DR. TRAVIS: It's rather hard to say until you actually get the data, but we have observed, in certain other programs -- Certainly the surf clam ocean quahog program, there is extensive vertical integration within that fishery and program. Now,

whether it's like that in this case, I am rather skeptical as to that magnitude. I wouldn't think so, just because of the larger number of participants, in general, in this program compared to that program.

DR. STEPHEN: Just to add to that, the one other thing is we've seen an increase in fishermen becoming dealers, the ones that we can identify through the dealer and the fishermen. Most of them have been very small-level dealers. It's been a fisherman who just didn't want to sell through a middleman and became a dealer in and of himself to make that progress.

DR. MITCHELL: In order for it to change, with respect to market power, I would have to observe significant differences in concentration because of ownership that I didn't know about, and, related to those differences in concentration, differences in activities, pricing or quantities or profits, that were related to those additional concentrations. Those both would have to occur for me to change the conclusions.

Now, with respect to the concern that's most publicly stated, yes, lots of people are making money off of them. Who is making the money off of the quota shares, that, I don't really -- That might change if somebody else was owning them, but it wouldn't change the results of the market power analysis.

CHAIRMAN BARBIERI: Thank you, Glenn. I have Lee and then Sherry and Bob Shipp.

DR. ANDERSON: I was just going to make one point on the getting rich issue. The whole idea of individual quotas is to gain efficiency over open access operations, and so I would hope that the folks, if they are being more efficient, can get rich, relatively. I think it's very important to make a distinction between that and market power, which is having the ability to withhold product to increase the market price.

Dr. Mitchell, I would like to say that I enjoyed your presentation. It looks like you did a very solid work, and, as far as this group is concerned, your conclusions are pretty straightforward. Don't worry about it is kind of what you're saying.

Now, I have a -- You may not remember me from before, but I am a member of the Mid-Atlantic Council, and so I sat in when you did the surf clam thing, and your report to the council did not come up with that similar conclusion. I don't remember the complete details, but I remember you left a little algorithm to come up

with a modified HHI based on things that I can't even tell you about now, but I could go back and read them, and I was a little disappointed -- Let me say it again.

Your conclusions support what I would do if I was sitting back in my armchair and saying what is going to happen. It's predictable, but it's good there was some work done, and I was somewhat disappointed that we didn't get that same sort of a conclusion for our work.

Now, that's a different subject and so maybe I'm cheating here, and so, to keep it on our context, how are you able to come up with some very definitive answers here and not have the same definitive answers for us, because we're going to be going forward, and I think people are still going to be rattling our cage, where they may not be rattling the cage down here.

DR. MITCHELL: I would say the number one thing was I had much better questions here.

DR. ANDERSON: Sorry?

DR. MITCHELL: I had much better questions. I was asked different questions. There were three of us that did surf clam, and the questions that were addressed to us were actually substantively different than the questions that were addressed here.

The questions for surf clam were along the lines of what kind of guidelines would you suggest to ensure that market power doesn't occur in the surf clam industry and things like that, whereas here it was what are the relevant markets, with respect to accumulation of quota allocation and quota share, and is there market power that's being utilized? Are there scale efficiencies that are being impacted by accumulation limits?

Based on all of that, what are your recommendations, and so the attention was much more on answering those specific questions here than it was in the surf clam.

DR. ANDERSON: So the Mid-Atlantic screwed it and asked you the wrong questions?

DR. MITCHELL: Basically, yes.

DR. ANDERSON: I feel so much better now.

DR. MITCHELL: To be fair, we tried to bring those questions

into the analysis, as much as we could, but we're sitting down at the beginning and saying, okay, what's the question and what kind of work are we going to do and this is how much time it's going to take and how much it's going to cost. Then we start to do it and we start to realize that they really want to know if there's market power being exercised, even though they didn't ask. We tried to work that in, but it was more difficult.

Then we didn't pay enough attention to the data in the surf clam. We were able to do a little bit better with the Northeast Fisheries, in terms of asking initially what kind of data was available, but there was far more data available here than we had for the surf clam analysis.

DR. ANDERSON: I can't resist following up, Mr. Chairman, briefly. If we ask you more stringent questions, similar that were asked here, would your answers to the Mid-Atlantic, do you think, be radically different than they were or that they gave to the Gulf?

DR. MITCHELL: I think probably the first thing I would say is those are really good questions. We don't have any of this kind of transaction data to answer those questions. Is that available? It might be, and then we could explore that. If it is, then we could see.

Is it going to make a difference? It's a really different industry, the surf clam, as you know. There is much more of an issue, I think, there of economies of scale, and there is -- Just from the analysis that we did do, I think there's a much stronger argument that you need concentration in that industry for efficient harvesting than you need it here.

I don't think that's necessarily a good thing environmentally or regulatorily, but, in terms of economic efficiency, which is what I'm supposed to be talking about, I think that, there, you're going to have much higher accumulation limits than you would have here, although, here, you don't really need to have them at all, because there is so much competition anyway. The scale efficiencies are going to be much more directly involved in the decision for accumulation limits in surf clams than in here.

DR. ANDERSON: I am not worried about market power in the surf clam fishery. Are you worried about market power in the surf clam fishery with the ITQ program and people affecting prices?

CHAIRMAN BARBIERI: Lee, and I apologize for having to

interject, but since we still have two people in the queue regarding the reef fish fishery, I think we could have a collegial conversation about the surf clams later over an adult beverage. Most likely we would need one, if I have to join you for that discussion, but do you mind?

DR. ANDERSON: No.

CHAIRMAN BARBIERI: Thank you. Sherry and then Bob Shipp.

DR. S. LARKIN: I liked Lee's comment, because I think it puts this paper in context. I mean you're looking at -- I think it reconfirms something that Walter mentioned. When you're looking at this market, our notion would be that the market for the fish is driven a lot by imports, and so we would expect that maybe particular groups of people don't have a lot of control over that price, and so I think, in one sense, having that information is good.

I think, going back to a point that I think Ken made, it's one piece of information. We do have other information on dealers from the transactions market, and we know that that does have some elements of concentration built in, and so it's putting all these pieces together to try to analyze what is important for this fishery and what is important for what managers want to look at when they move forward.

CHAIRMAN BARBIERI: Thank you, Sherry. Bob Shipp.

DR. SHIPP: Thank you, Mr. Chairman. I want to go back to something that David and Ken brought up and this issue of sea lords. I think I heard you say that that's really not a very significant activity. Did I hear that correctly? Our impression was it's a pretty significant activity, and so I would like to hear your thoughts on it.

DR. MITCHELL: What I said, and to the extent that I looked at it in the data -- It wasn't actually one of the questions, but I looked at it anyway, because we were talking about it and it's in the articles.

I didn't do a complete analysis, but I looked at the largest harvesters, and those largest harvesters were people that had the -- I looked at the largest shareholders, and the largest shareholders were primarily the largest harvesters, and so the people who own large shares generally were doing a lot of fishing and buying up more shares to get to be the largest harvesters.

Now, there were somewhat large shareholders that weren't doing any fishing, and so that might be the definition of "sea lord", and I don't know, and they were not getting any different pricing for their allocation, that I could tell, that flowed to their shares than anybody else was, and so they were getting the same value out of their shares as the people that were using their shares to harvest, and that's as far as I went.

We did have a discussion, which I am going to introduce into the record, because I thought it was interesting. The five-year history for assigning the share is you have to make arbitrary decisions, as regulators, but that's -- I'm sure there was a big battle over that history of why that period was used and how to calculate that, but there is no particular reason why you can't have that be a rolling five-year history and update it every year to a new five years. If participation in the fishery is deemed as part of the requirement to get share allocation, then eventually you would roll right out of it, if you didn't participate. That's just a suggestion.

CHAIRMAN BARBIERI: Thank you so much for that presentation and addressing all those questions, Glenn and Mike. I want to, before we recess for lunch, I want to remind the Socioeconomic SSC members that there have been very good discussions this morning and that all of this can be used to enhance the language in our report.

Steven is taking notes here, and we're going to have our draft report circulated to all the members, but whatever you can do to add some of those details that I think have really enriched the presentation and the discussions and helped clarify some of those issues, that would be great. With that, we're going to recess for lunch, and we are going to reconvene at 1:30.

(Whereupon, the meeting recessed for lunch on June 1, 2016.)

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June 1, 2016

WEDNESDAY AFTERNOON SESSION

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The Standing, Reef Fish, Socioeconomic, Shrimp, and Spiny Lobster Scientific and Statistical Committees of the Gulf of Mexico Fishery Management Council reconvened at the Hilton

Westshore Tampa Airport Hotel, Tampa, Florida, Wednesday afternoon, June 1, 2016, and was called to order at 1:30 p.m. by Chairman Luiz Barbieri.

APPROVAL OF THE MARCH 8, 2016 STANDING AND SPECIAL SHRIMP SSC MINUTES

CHAIRMAN BARBIERI: I am going to reconvene for the afternoon. For those of you just joining us now, welcome to the June 2016 Gulf of Mexico Fishery Management Council SSC meeting. We had a meeting of the Standing and Socioeconomic SSCs this morning, dealing with a number of topics, and we are reconvening this afternoon the Standing, Socioeconomic, and Shrimp SSCs to discuss a number of other topics as well.

The first item on our agenda this afternoon is Approval of the March 8, 2016 Standing and Special Shrimp SSC Minutes. Any comments or questions regarding the Shrimp SSC Minutes?

DR. BLOUNT: Move they be accepted.

MR. GILL: Seconded.

CHAIRMAN BARBIERI: Thank you for that, Ben and Bob. The minutes of the March 8, 2016 Standing and Special SSC Meeting are approved by acclamation. That will lead us to our next agenda item, which is a discussion of Shrimp Amendment 17B, Optimum Yield and Maximum Sustainable Yield, Number of Permits, Permit Pool, and Transit Provisions. We are going to have Dr. Morgan Kilgour give us a presentation and lead the discussion on Review of the Amendment and then discussion of the Aggregate MSY/OY Working Group Summary. Dr. Kilgour.

SHRIMP AMENDMENT 17B (OY, MSY, NUMBER OF PERMITS, PERMIT POOL, TRANSIT PROVISIONS)
AGGREGATE MSY/OY WORKING GROUP SUMMARY

DR. MORGAN KILGOUR: Thank you. The MSY/OY Aggregate Working Group discussion is intertwined with our discussion of Amendment 17B, and so if I could go over those results first, that would be helpful, I think, if no one objects. On March 2, there was a working group that was convened to discuss an aggregate MSY and an aggregate OY for the shrimp fishery.

MR. ATRAN: This is Item VIb.

DR. KILGOUR: Overall, the working group decided that using the methodology established by the ad hoc effort working group in

2006 would be appropriate for the aggregate MSY, and I believe I sent out that report to the Shrimp and Standing SSC. I apologize for not sending it to the Socioeconomic SSC yesterday, but that explained all of that methodology.

It basically uses a pooled approach to define what the aggregate MSY is, and the working group in 2016 agreed upon an aggregate MSY of just over 109-million pounds of tails. Are there any questions on this methodology, because now would be the time.

CHAIRMAN BARBIERI: Just for the benefit of the committee, Morgan, can you give us just the thirty-second summary of what the aggregate MSY entails?

DR. KILGOUR: It's a pooled approach that looks at all of the managed shrimp species that are caught from offshore waters, so the COLREGS line out through the EEZ.

DR. NANCE: All species.

DR. KILGOUR: It's all species and not just managed, but all species. Using the pooled approach, it comes up with -- It's the same model that we used for the shrimp stock assessments, correct, or it's a different model? Do you want to explain it for me?

DR. NANCE: All this is, it's taking the aggregate pounds, the aggregate effort, for offshore, the COLREGS line out, all species, all the effort, and doing a simple Graham-Schaefer curve to estimate MSY.

CHAIRMAN BARBIERI: Okay. Thank you. As Morgan pointed out, just as far as the aggregate MSY estimate, any questions or comments from the committee? Ben.

DR. BLOUNT: Just a note that we're talking about all four of the shrimp species here. Jim said that, but just to add that to it.

DR. NANCE: It even has a little, while there is not a lot left, but rock shrimp, Trachypenaeus, those are also -- All shrimp that could be caught are in this, but there's very few pounds of what we would consider other species, but they're still in that mix.

CHAIRMAN BARBIERI: David.

DR. GRIFFITH: I was just wondering if you have the data for the

inshore -- This is further than nine miles or further than three miles, right, depending on --

DR. NANCE: That's incorrect. This is the COLREGS line out.

DR. GRIFFITH: It's what?

DR. NANCE: The COLREGS line. It's a navigational line which is used by the Coast Guard, and so it defines inshore and offshore waters. This is basically, for purposes here, anything from the beach offshore, and so it does include what would be considered state waters, beach out to nine miles or three miles, depending on the state. It includes all of those data also. It just doesn't include bay systems.

CHAIRMAN BARBIERI: Thank you for the clarification, Jim. Any other questions or comments? Morgan.

DR. KILGOUR: Just one more clarification. The reason why they use the offshore and not just federal waters is because the data can't be partitioned that way. It can be partitioned offshore versus inshore, but not federal versus state versus inshore.

CHAIRMAN BARBIERI: Yes, and thank you, Morgan. If there are no other questions or comments regarding the pooled shrimp MSY estimates, Morgan, you can proceed.

DR. KILGOUR: The bulk of the working group discussion centered around this aggregate OY, which in the shrimp fishery now, OY is equal to MSY, and the group discussed that that probably is not appropriate and that OY needs to be reduced for some certain factors, and they were discussing what factors would be appropriate.

Actually, looking at the data and what the group wanted to -- There are certain constrictions on the shrimp fishery now. There is a sea turtle bycatch threshold that the shrimp fishery is currently under. There is a juvenile red snapper bycatch threshold that the fishery is under, and they also discussed that there are two things that they would like to maintain, and that's a high CPUE and a high landings.

Looking at those four objectives, they looked at the historical data, which is available in the appendix of that summary, which is on page -- It starts on page 8, and I'm sorry, but I think the conversion just made it kind of screwy, but you have the landings, the CPUE, the predicted landings, and the predicted CPUE.

The group chose to look at the predicted landings and the predicted CPUE, because that kind of adjusts for differences in the environmental conditions of the fishery, so that it makes basically all things equal for every year, and they found that 2009, which is actually the year that is the threshold effort year for the sea turtle bycatch, encompassed all of the things that they wanted OY to adjust for.

The group, after considerable discussion, thought that using the predicted landings from 2009 would be the appropriate aggregate OY value, and I would be happy to answer any questions or punt some questions to Mike and Jim, if there are any questions for that.

CHAIRMAN BARBIERI: I don't see any right now, Morgan. There might be more as the discussion continues, but go ahead.

DR. KILGOUR: Okay. What I need from the SSCs are basically to comment on this aggregate MSY/OY summary and, if there are any modifications or adjustments that need to be made, now would be the time. These values, the aggregate MSY and the aggregate OY, are used in the actions for Shrimp Amendment 17B, and so we can delve right into that, if you would like to, or if you would like to comment on this working group summary, that would be helpful as well.

CHAIRMAN BARBIERI: This issue is about basically looking at the scientific basis, the criteria that were used, for development of these quantities, management quantities, and whether the SSC would have any comments, suggestions, or concerns that they want to voice regarding those methodologies used. Yes, Jeff.

DR. MARX: Let me get this straight. We have the MSY of 109-million pounds, correct? I'm having a hard time finding the OY on this document. I think it was on the amendment, and so what is your OY?

DR. KILGOUR: I'm sorry. I don't think I ever said that out loud. Do you want me to just talk about it in terms of --

DR. MARX: I can't read minds yet. I'm working on it.

DR. KILGOUR: The OY is just upwards of eight-five-million pounds, and let me get the exact value for you. It's 85,368,059 pounds of tails.

DR. MARX: Then, going back in history and just looking at it,

we would have crossed that threshold quite a bit of times, when you look at your actual landings.

DR. KILGOUR: Right, but that doesn't matter. It's just setting an OY. There is no management action on the fishery if OY is exceeded.

DR. MARX: All right. I just wanted to make sure that stays that way.

CHAIRMAN BARBIERI: Morgan, I think that the committee is -- My interpretation is the committee's lack of additional questions or comments is basically concurrence with the approach as presented. I mean Jeff asked for clarification, and I am seeing some heads nodding, and basically the committee has no concerns regarding the scientific approach used to estimate those quantities.

REVIEW OF AMENDMENT

DR. KILGOUR: I guess that means we can delve into Amendment 17B. The first action that I needed the SSC to weigh in on this action establishing an aggregate MSY for the shrimp fishery, and I will let her get to that page, so I don't -- It's on page 7 of the document.

The first action is to establish an aggregate MSY for the Gulf of Mexico shrimp fishery, and so the Alternative 1 is no action, there would be no aggregate MSY, and Alternative 2 is to establish this aggregate MSY that was outlined by the aggregate MSY/OY working group, which is 109,237,618 pounds of tails. Those are the only two alternatives that are presented to the council, and so if the SSC has an issue with those two alternatives, now would be the time to weigh in on that.

CHAIRMAN BARBIERI: Morgan, to that point, has this amendment been presented to the council yet in a previous version?

DR. KILGOUR: Right, but the council wanted to hear if the SSC had any issues with the alternative as presented, because, at the last SSC meeting, you didn't get the full MSY/OY Working Group Report, because it had only been three or four days and then the SSC met, and so I wanted you to have the full report before you made any --

CHAIRMAN BARBIERI: Yes, and I see a lot of nodding heads and folks that basically have gone through the working group report and have no concerns with these alternatives as presented.

DR. KILGOUR: You guys are making me look bad. I think I overestimated my time.

CHAIRMAN BARBIERI: Bob Gill.

MR. GILL: Thank you, Mr. Chairman. Morgan, you indicated this has been presented to the council. Therefore, I assume that GC had no concerns with only one alternative?

DR. KILGOUR: No, GC didn't have any concerns. NEPA might be a different story, but --

MR. GILL: For the record, I would raise my eyebrow a little bit, and so I talked to Dr. Nance about why there could not or should not be another alternative offered, and his response was that there is no other way. With that being said, I understand it better, but it did raise an eyebrow that only one option had been provided here, because Alternative 1 is not an acceptable real alternative, but it needs to be there.

DR. KILGOUR: Just for clarification, we do have individual species MSYs. This establishing an aggregate MSY is really necessary for, further on in the document, for Action 3, where we're trying to establish a threshold number of permits for the shrimp fishery.

You can't do that based on individual species MSY, since they use the same permit to fish for all of the species, and so that's why this aggregate needs to happen, so that there can be a solid number to look at for the threshold numbers, but, as I was reminded, any other value would be arbitrary, based on the analyses that the working group did.

CHAIRMAN BARBIERI: Again, just to remind especially the Shrimp SSC members that this might be a valuable point to be brought up in our report that would help assist the council and staff in justifying having an SSC narrative there that explains the reason behind and how it actually works, in this case in particular. Jeff.

DR. MARX: Thank you, Mr. Chairman. Just a quick comment. In the days that we have with special interest groups and that sort of thing, I am worried about MSY, especially when we could probably -- The number is coming from a thing where we didn't take into account the environment. If it's an annual crop, like we know shrimp to be, if we go and catch 130-million pounds, are we going to have some of these groups coming and knocking on our

door and saying we're overfishing, when that's probably not the case?

DR. NANCE: Also, remember that this is an aggregate value, from a management perspective. We do have shrimp stock assessments for each of the different species, and that's what they're for, is to make sure we're not overfishing or overfished. It's, I think, two separate things we're doing. We have those for those concerns. We're looking at this from a management perspective, for permits and things like that, and that's its purpose.

CHAIRMAN BARBIERI: Thank you for that clarification, Jim. Just for the administrative record, we have another Shrimp SSC member, and, for the purposes of voice identification, would you please identify yourself?

DR. RYAN GANDY: Sure. Ryan Gandy, Florida Fish and Wildlife.

CHAIRMAN BARBIERI: Thank you, Ryan. Morgan, I think we are ready to move forward.

DR. KILGOUR: Excellent. Let's move to Action 2, which is another action that I need the SSC to weigh in on, and that's to establish an aggregate OY. The Alternative 1 is no action, don't establish an aggregate OY, and Alternative 2 is to establish an aggregate OY based on the recommendations of the MSY/OY working group, which is that value of eighty-five-million-plus pounds of tails. Again, this value was decided upon based on the sea turtle bycatch threshold, the juvenile red snapper threshold bycatch threshold, and the high CPUE and high landings value that were historically observed.

CHAIRMAN BARBIERI: Bob.

MR. GILL: Thank you, Mr. Chairman. It seems, to me, that the argument for Action 1 doesn't hold true for Action 2. There are several ways we could compute OY, because that's somewhat of a subjective question. My question for that would be why are there no others there and why should there not be others there?

DR. KILGOUR: I will give you the *Readers' Digest* version, and if Mike or Jim want to jump in and elaborate a little bit, that's fine, but, basically, the group discussed maybe coming up with a complicated biosocioeconomic model or having some buffers around this OY that they had decided upon, and they felt that the buffers for the OY would be basically arbitrary, because you're buffering that one point that you are basing off of a historical value and so, really, it's the same value, but you're

just adding a buffer or something to it.

The reason why they decided not to do a complicated biosocioeconomic model was it would be complicated and all of the weight -- You would have to weight values differently, and all of that would be -- You would have to determine what's more important? Is sea turtle bycatch more important? Is high CPUE more important? All of those things that would go into the model would have to be driven by what the council found to be the most important component of the model, and so, after a lot of discussion, they felt that looking at the historical data and the predicted values from that data would be the most clear-cut way to go for establishing this aggregate OY, because it encompasses bycatch scenarios and encompasses high CPUEs and it encompasses high landings, and you're welcome to jump in and elaborate if you want.

DR. TRAVIS: I will jump in on this a little bit. One point that I wanted to clarify, and hopefully Jim will back me up on this, is we have heard a few times that there may have been a misperception that the working group considered this particular value, the OY value, to be a constant, a fixed, value that would just stay in place indefinitely, but that is not the case. This is the value that we came up with using the currently-variable data.

Any of the factors that went into this subjective evaluation of what OY is, if those things change, then it seems like you would have to revisit the OY issue, but, to back up what Morgan said, we tried to take into account the various factors that National Standard 1, the guidelines in particular, say you're supposed to look at when you're establishing OY.

I think that we made our best attempt at an initial stab of using those factors to come up with this, but, if it came down to we were developing a more formal model, where we would assign specific weights, quantitative weights, to each particular factor, I think the group started feeling uncomfortable with that and said we may not be the appropriate body to decide what the best weights are and that's probably more in the domain of the council, or even this group, possibly, if they wanted to weigh in on that.

CHAIRMAN BARBIERI: Mike, that group that you mentioned is the IPT?

DR. KILGOUR: No, this is the working group.

CHAIRMAN BARBIERI: Yes, Bob.

MR. GILL: Thank you, Mr. Chairman. I think I appreciate that, but it seems, to me, that Alternative 2 could easily be considered a preferred, that that's the logical choice, and I don't have a problem with that at all, but, not having other possibilities for computation of OY, I would be very surprised if that satisfies NEPA and gets by GC, and that's probably beyond the purview of this body, but it seems, to me, that there are options there that could be provided under some kind of rationale that say, hey, here's another way of considering OY.

DR. TRAVIS: I would agree with that, and I know the working group was rather -- If the SSC had suggestions, in terms of alternative methodologies to use, I am quite sure we would be open to hearing any of those suggestions and revisit the issue and possibly coming up with additional alternatives.

I will make one other point, and hopefully I don't push this too far, is I guess you could say that, when it came down to it, implicitly, that we probably did place the greatest weight on the sea turtle bycatch threshold. It seemed to -- Even though those other factors are there, it seemed to -- The discussion came back, and I think that happened in the AP meeting as well, but the discussion continually came back to that sea turtle bycatch issue, because if you go past that threshold, the fishery is shut down, and so that seemed to be the overriding concern.

CHAIRMAN BARBIERI: Thank you, Mike. Ben.

DR. BLOUNT: Thank you, Mr. Chairman. Mike just said basically what I was going to say, but maybe to repeat it in a slightly different way is that the working group was, by no means, opposed to other options, speaking to Bob's point, and, in fact, we talked at great length about other possibilities, and we could have put other options there.

I think it was a factor of our not having the information, either data or analyses or both, that would allow us to set weights that we felt would be appropriate, and so we declined to do anything else, because of sort of lack of certainty there, but certainly the SSC could make a proposal. I don't think it would present a problem to us in that regard.

CHAIRMAN BARBIERI: Thank you, Ben. Any other points regarding development of the option for OY? Mike or Morgan, let me ask you a quick question. I had to miss or I had another -- I was

out of town, and I couldn't join the last meeting that involved the working group, the shrimp working group. Was the methodology for developing this OY estimate presented at that meeting to the full SSC?

DR. KILGOUR: No, and so I gave -- Well, kind of. I gave the rationale for the values and I gave the values that were recommended by the working group, but not the methodology, per se, and the SSC did not have access to the summary report either, and so that's why it's being re-presented today.

CHAIRMAN BARBIERI: What's the schedule for presentation of Amendment 17B to the council?

DR. KILGOUR: The council will see another draft options paper at the June council meeting, hopefully with some of the SSC recommendations incorporated into it, and where we go from there is really up to the council and how much they add or take away from the current iteration of the document.

CHAIRMAN BARBIERI: Ben.

DR. BLOUNT: Thank you, Mr. Chairman, and I just wanted to ask Bob Gill, if I could, but did you have something specific in mind or was it just the lack of another alternative that raised red flags for you?

MR. GILL: Just the latter, Ben. This one seems ripe for another alternative, at least one, being there. The absence of that seems, to me, to be problematic.

CHAIRMAN BARBIERI: I see some caucusing over there.

DR. KILGOUR: It would be helpful, since the SSC has brought this concern up, if there was some other viable alternative that would be recommended for at least consideration. I think the overall MSY has been reduced by some percentage, something like that.

CHAIRMAN BARBIERI: Morgan, to that point, perhaps let me try and reframe that. Perhaps the committee could recommend that staff develop a number of approaches or two or three different options or two different options of methodological approaches that could be used to estimate OY, and the committee could review that at a later meeting.

I mean this could be presented still at the June meeting to the council, noticing this comment from the SSC, and perhaps that

would be helpful, because the idea of presenting this to the committee is, first, to provide you and the council some suggestion on how to make it better and make it easier for it to go through the whole NEPA and all the approval processes that are forthcoming, and so that might be an idea. I have Jim and then Steven.

DR. TOLAN: Thank you, Mr. Chairman. As just a quick defense of this single option, and I know it's a concern, just having that one particular option available, but I think it's pretty well spelled out in the discussion why just setting some percentage to knock OY down from MSY, why for this particular species group, this aggregate, is probably not a great idea, and so I think, in their defense, it's pretty well spelled out in the document, and so I commend the job they did on that.

I am wracking my brain and trying to come up with a way that you could approach some other way to come up with another option for this species aggregate, but I don't really see a way to get there.

CHAIRMAN BARBIERI: Yes, Steven.

MR. ATRAN: On the agenda for tomorrow afternoon, under Reef Fish, there is a discussion of reef fish optimum yield, as it relates to MSY. I'm not going to get into the discussion right now or the reason why it's on the agenda, but we were thinking about maybe considering going to some simplified method of OY for reef fish, maybe some fixed percentage instead of some calculation, and so we are going to consider that for reef fish. Maybe something similar could be considered for shrimp, to just say OY is some fixed percentage of MSY. It would be arbitrary, but at least it would be constant.

CHAIRMAN BARBIERI: Yes, Jim.

DR. NANCE: That's one of the reasons we didn't just choose 5 percent or 10 percent. I mean, because those are just drawn -- We could have those in as options. There is not really a lot of rationale of why they're in there, but you could have them there, 5 percent, 10 percent, that type of thing, just to have options, and maybe that's the way to go, but what we tried to do here, as Jim pointed out -- We did go through and we proposed some rationale of why we did it this way, instead of just putting out some percent reductions.

CHAIRMAN BARBIERI: I mean I feel that our discussion is on the record, and we have our council liaison present here, who

happens to be very interested and sits on the Shrimp Committee, and so the council has the option, and staff, to pursue this further, if they see that this would be beneficial, and there may not be any better way to do it, and this can be sort of a preliminary estimate that is provided to continue with this amendment going through. Eventually, if the council sees problems with this, it can return to the committee for evaluation of different options. Yes, Jeff.

DR. MARX: Thank you, Mr. Chairman. Can I just get a clarification? Jim, you probably know, but for each species calculation of MSY, do we have an OY for each of those species?

DR. KILGOUR: Actually, we do. Right now, OY is equal to MSY for each of the species.

CHAIRMAN BARBIERI: Ken.

DR. ROBERTS: Thank you, Mr. Chairman. This might be useful, I think, for the record. Choosing the point estimate, it said, is based on the history of the fishery. Then the sentence goes on and says that a sociobioeconomic model would be too much subjectivity in it. I think it might be useful, at some point, to -- The latter, I can see. The former, choosing a point value based on the history of the fishery, I think it might be good to make sure you have some discussion in there on what those things in the history of the fishery that led you to strengthen the case for a point estimate, at some point.

CHAIRMAN BARBIERI: Good suggestion. Thank you, Ken. Any other questions or comments for Morgan and Mike regarding this issue? Mary.

DR. CHRISTMAN: Just a question of clarification. I just want to make sure that I understand. The OY that's in Alternative 2 was based on the predicted CPUE landings from Table 7, I think it was?

DR. NANCE: It's taking the 2009 effort and applying it to that curve.

DR. CHRISTMAN: So that's based on the regression function that's shown in Figure 2.3? 2.1.1? I am just trying to figure out why, in your discussion, you say you've gotten a point estimate, but you can't put a confidence interval on it, because it's a point estimate, but that's -- I'm a little confused.

DR. KILGOUR: I might punt this one to Jim, and it wasn't that

they couldn't put a confidence limit on it, but it's they chose not to, because they felt that it would just be -- It's because it's a predicted value, and so you would be having to put a confidence limit on a predicted value, and they chose not to.

DR. CHRISTMAN: But it's not the confidence interval would be based on a point estimate. By definition, they are, and so I guess it's just the reasoning behind it is a little confusing, and it's probably because there is not a lot of detail about how that particular value in Alternative 2 was derived, and so I'm trying to sort of work back and forth to figure it out.

DR. TRAVIS: Is that the figure from the amendment document or is that from the working group report?

DR. KILGOUR: That's from the amendment.

DR. TRAVIS: Okay, and so the actual equation for the yield curve is not in the amendment document. It is in the working group report. It's associated with Figure 2.1 in the working group report, and so I think that may be what you're looking for. It's the same curve, but, for whatever reason, we yanked out the equation when it got transferred into the amendment document, but it's Figure 2.1 in the working group report. It's page 5.

CHAIRMAN BARBIERI: Does this make it easier, Mary?

DR. CHRISTMAN: It's more informative.

CHAIRMAN BARBIERI: Yes, Joe.

DR. POWERS: While we're on that figure, what was the discussion that went on about why you had a parable where it crosses the X-axis at 49,000?

DR. NANCE: It starts at 50,000, and so it crosses the X, but, if you carry it on down, it would be towards zero.

DR. POWERS: All right, and let me ask it another way. Oh, it's because the Y-axis doesn't go to zero.

DR. NANCE: That's right.

CHAIRMAN BARBIERI: Ryan.

DR. GANDY: Thank you, Mr. Chairman. I guess one of my questions is more basic of the application of this OY, given

that it's an aggregate over three stocks. I know it's intended to use for effort management, in that sense, but has anybody looked at how that may -- If it's going to be used to come up with an effort limit, how that may impact as it feeds back down to the prosecution of the three stocks? Does that make sense?

DR. NANCE: We did talk a little bit about it, and maybe, Ryan, you weren't in the room when we did it, but we talked a little bit about this was for management, from a permits standpoint, and we do have the stock assessments for the three individual stocks, which were still being used.

Those, I think, from a council perspective, would be the ones being used for overfished and overfishing, to make sure that those stocks were being managed properly, and this one, I don't think, would be used at all for if we went over this or that type of thing, but it's more from a permits standpoint, as opposed for effort management.

DR. GANDY: But it will limit the number of permits?

DR. NANCE: Well, that's the different options later. All this does is these first two options create an MSY and an OY that then can be used, later in the document, for permit management.

DR. GANDY: Okay, and so it's the structure.

DR. NANCE: Yes.

CHAIRMAN BARBIERI: Yes, Jeff.

DR. MARX: Looking at 2006, were any turtle thresholds or red snapper thresholds crossed in that year?

DR. NANCE: I don't know if they were in existence then. I think, if my memory serves me right, the red snapper baselines were developed after the 2006 timeframe, and they were based on the baseline of 2001, 2002, and 2003, and I think the 75 percent limit went into effect, I think, in probably 2010 or something like that, 2010, or maybe 2008. I don't think 2006 was -- We didn't have the snapper limit for 2006.

CHAIRMAN BARBIERI: Mike, do you have a clarification?

DR. TRAVIS: Yes, a clarification to Jeff's question. Were you asking if the effort level in 2006 was above the sea turtle threshold?

DR. MARX: Yes, and I just wondering -- It says you picked 2009 because it didn't approach those thresholds.

DR. TRAVIS: 2009 is right at the threshold for sea turtles, and so if you go back to 2006 effort levels, you are definitely beyond the sea turtle threshold.

DR. KILGOUR: The bi-op for the shrimp fishery establishes the sea turtle threshold as the effort in 2009, and so that's where that came from, and so 2009 effort is the threshold established in the biological opinion.

DR. TRAVIS: Just to clarify a little bit, that threshold is for the fishery as a whole, and, here, we are only talking about offshore, and so it's a proxy, but --

DR. MARX: I would like to see, and I know this is in hindsight and everything, but having 2014 data would be spectacular, because I think your efforts is going to be sky-high that year, just due to the prices at that point. At least it would give you something to compare a high effort year. I don't know what the CPUE would be, because I don't know that we'll ever attain another effort that we had in 2014, unless something drastically happens with the imports.

DR. TRAVIS: Jeff, just to clarify, are you asking if the effort went up in 2014 or are you asking if it exceeded the sea turtle threshold?

DR. MARX: I'm pretty sure it went up, but I don't think about the -- It's just to put it in reference with all these other data points, to see where it falls. Basically that's kind of what I'm getting at.

DR. TRAVIS: Right, and that's a good question, and we did look at that recently, and I can tell you, based on what I got from Rick Hart, that it did bounce up and it is a little below the 2009 level, and so we're still good.

DR. NANCE: It's below the sea turtle and it also is below red snapper.

DR. TRAVIS: Right, which we were very close to the red snapper one.

CHAIRMAN BARBIERI: Again, Jeff, not to harp too much on this, but another good point for beefing up our report, inclusion of some of these comments and additional points that can help

clarify the issues for us. I think we are ready to move on. Any other questions or comments for Morgan and Mike? Walter.

DR. KEITHLY: Thank you, Mr. Chairman. Just a -- I'm not arguing for this, but there's been a lot of discussion that it may need a few more alternatives with respect to OY. If you want to consider some, the issue of the confidence interval came up. You could have one alternative as being the minimum of the confidence interval and the other one being at the upper end and then actual value as the alternative, what's Alternative 2 now.

DR. CHRISTMAN: Excuse me, Walter, but could you repeat what you just said? I didn't quite understand. Could you repeat it?

DR. KEITHLY: For 2009, the estimated effort, there will be a confidence interval around it, for catch at least.

DR. NANCE: There is around the effort.

DR. KEITHLY: Around the effort? So you could use the lower bound of that confidence interval as one additional alternative and the upper bound as a second additional alternative and the two alternatives could remain as they are now, the actual value and no OY.

CHAIRMAN BARBIERI: Duly noted.

DR. TRAVIS: We did discuss this, and it's covered in the first full paragraph on page 3 of the working group report, because we were -- Partway during the discussion, I think that was the path we were moving down, and then a few folks, and I was actually trying to remember myself, brought up a couple of points and we decided not to move in that direction.

DR. KEITHLY: Again, I'm not worried about the two alternatives that there are. I think there's enough, but some committee members here appear to be concerned that there is only two alternatives. I am just giving you a method that you could add two more.

DR. KILGOUR: Yes, that's not a problem. We can add that as an alternative, no problem.

CHAIRMAN BARBIERI: I see now, Walter. I mean that's a good suggestion that would add additional options. I mean I think that explanation there that you gave us before is that you already had kind of sort of ruled those out, because they didn't include all of the factors and parameters that you thought would

be important for selection of that process, right?

DR. KILGOUR: Okay, and so I guess we can move on to the next action, if there are no more alternative suggestions for optimum yield. The crux of this document is basically to establish this threshold number of permits, how many permits should the shrimp fishery have in order to maintain the shrimp fishery.

It does not actively remove permits from the fishery, and so if people choose not to renew their permits, then they are passively terminated, but, as long as people continue to renew their permits, they will continue to keep their shrimp permit moratorium permits. I want to say that upfront, because there seems to be a lot of confusion about this action actively reducing the number of permits in the shrimp fishery.

There's been a lot of discussion on what is the appropriate number of permits in the shrimp fishery, and so that's what this action is dealing with, what is the appropriate number. The first alternative is no action, don't set a threshold number of permits.

The second alternative is to set a threshold number of permits based on the aggregate OY, and so, again, that aggregate OY that was identified in Action 2 was using the juvenile red snapper threshold, high CPUE, and high landings.

Alternative 3 looks at the number of active permitted vessels during 2011, when effort was the highest during the moratorium in the area monitored for red snapper. That would be 938 permits. Alternative 4 sets the threshold number of active permitted vessels during 2008, when the catch per unit effort in the offshore fishery was the highest.

Alternative 5 has two options, and this alternative looks at the active number of permitted vessels, and it kind of weighs both the high CPUE and high predicted landings. It's looking at two different things, and all of those are available in the table on page 15, and so we can scroll to that page. That was Option 5a, is 2007, and 5b is 2012.

Then the last alternative is set a threshold number of permits equal to the number of valid permits, and so not the number of active permitted vessels, but the number of valid permits, based on three different years, the end of 2013, the end of 2014, and the end of the initial permit moratorium expiration date, which is on October 26, 2016. The SSC is requested to look at these alternatives and decide if they all have enough scientific basis

to hold their weight.

CHAIRMAN BARBIERI: Jeff.

DR. MARX: Thank you, Mr. Chairman. How many permits, valid permits, were there in 2009? I see the predicted active permitted vessels was 1,074.

DR. KILGOUR: One moment, please. I think it's on page 2. It's Table 1.1.1 on page 2. That has the number of valid permits. In 2009, it's 1,722 permits.

CHAIRMAN BARBIERI: Yes, Joe.

DR. POWERS: Thank you, Mr. Chairman. Essentially, what you're doing here is translating number of permits into fishing days, or vice versa, I guess. If you go to the Figure 2.1 of the report, of the other report, the working group report, what you're saying, essentially, is that all these options that you're talking about are related to the data points that are on the left-hand side of the curve. Is that the case? What is the justification for it not being higher, for example?

In other words, that optimum yield is achieved to the right of those data points, optimum or maximum sustainable yield, and so I think you're going to need some sort of justification, because if you translated this into -- If it twists around in terms of biomass, you would be saying that the biomass would be pretty high. With these yield curves, you can switch back and forth between biomass and effort, and so I think it needs some justification about why the limitations are as they are, and I suppose that one of the justifications is related to the turtle issue for 2009.

CHAIRMAN BARBIERI: Yes, Steven.

MR. ATRAN: I'm only going to mention this because I don't see it mentioned in the report anywhere, but, on this graph, you've got two very clear sets of data, 2004 and earlier and 2005 and later, and the obvious separation point is Hurricane Katrina, and so it's possible you may have had some sort of a regime change as a result of the storms that year.

DR. NANCE: Remember though that, whether we had the hurricane or not, but we did have tremendous change in fuel price, where fuel price was very high and shrimp price was very low. If it would be just that one factor, we would have seen a change back. We would have effort going back to where it was, and, since that

drop in effort, we have not seen it increase since that point, and so it's more -- I'm not saying Katrina didn't have an impact, because it certainly did, but we also see fuel price and shrimp price being controlling factors that have kept things, since they've gone down, where they are now.

DR. TRAVIS: Steve, we did talk about this at great length. Clearly you have two different regimes, one on one side of the curve and one on the other, but I think there was pretty much a consensus that the regimes are dictated by economic and social factors and that economic factors are keeping us on the left side of the curve.

MR. ATRAN: Okay. It just struck me as rather striking that you had all of the earlier years on one side and all of the recent years on the other side.

CHAIRMAN BARBIERI: By the way, if I understood Joe's comment correctly, I mean this is exactly that point, in terms of suggestions to beef up the narrative there, in terms of justifying your choices of years and why they fall where they do.

DR. POWERS: Yes, and if you took this curve literally, basically, if you manage them perfectly, you would have 144,000 fishing days, which could get translated into number of permits. What you're doing is saying you want to be on the left-hand side of the curve, and so what I'm suggesting is why, why do you want to be that far over to the left-hand side of the curve?

DR. TRAVIS: I did think that we discussed this in the working group report, at least to some extent, and I'm not saying we can't flesh it out more, of course, but the sea turtle issue and the effort cap there, the juvenile red snapper issue and the effort limit there, and then also with regard to CPUE -- Certainly, I mean, we could -- If the economic factors were right and we allowed the effort level to rebound back to what it was in 2004, but the implication of that, for the harvesting sector, is that your CPUEs would go back down, and those CPUEs that we saw back ten years ago are -- I don't know if I want to use this term, but I'm going to use it anyway, but they're not economically sustainable for the harvesting sector. They could not survive, under current economic conditions, with a CPUE that is half of what it's been in recent years.

CHAIRMAN BARBIERI: Jeff.

DR. MARX: Thank you, Mr. Chairman. The problem I have with

Alternative 2, which is the AP preferred one, is that you're setting the cap at 1,074. That's what it says. It's equal to the OY, the year with OY, correct?

DR. KILGOUR: Right, but it's not a cap. That's the minimum number. If that number is hit, then the council may take action or not. Those are different actions in this document, but it's not a cap. It's, once the number of permits hits that number, what is the council going to do?

DR. MARX: Okay. With that number, you're trying to relate that back to 2009, when you had the predicted vessels was 1,074, and that was a high CPUE year. The problem was, at that time, you had 1,700 active permits, and so there is a --

DR. KILGOUR: You're correct that we had 1,700 valid permits, but not active permits.

DR. MARX: I apologize. That's what I meant, valid permits. I think that's what is getting a lot of people sort of -- If we're setting the threshold at 1,074, if you have -- Like in that year, we're talking 40 percent of the vessels weren't active. If you drop to this number of 1,074, and I think I saw a graph in here that had about 25 or 33 percent is generally latent, they're not fishing, and so if you drop this level to 1,074, you're only going to have 600 vessels or 700 vessels that are actively fishing, probably. That's dangerously -- You talk about economic sustainability, and those guys -- Eventually, you're going to hit a point where the docks aren't going to be able to supply ice and they're not going to be able to stay in business for these guys.

DR. KILGOUR: Right, and the AP discussed this at length, and there have been a lot of discussions on this percentage of inactive vessels, because the AP discussed how not every -- In no year has there been 100 percent activity on all of those permits.

However, the AP was really concerned with having that 30 or 40 percent buffer, because they felt like, as the fishery constricts farther and farther, it's starting to become profitable again, and if you set that threshold number too high, then your effort could skyrocket and the fishery is closed.

So the AP discussed that threshold number at length, and they really felt that setting it equal to the number of active permits in 2009 was the best, safest course of action. Now, they also discussed that this is not an active reduction in

permits. As long as you renew your permit now, you continue to have your permit.

This is just at 1,074, if that's what the fishery goes down to, what is the council going to do? In Action 4 and Action 5, it's establishing a permit pool to open up permits for other people to access permits in this fishery, and so I want to stress that that was a concern and it has been discussed at length, but they were really concerned with effort suddenly increasing quickly because economics -- Like in 2014, economics were great, and they were within a whisper, to use Mike's terminology, a whisper of being shut down because of juvenile red snapper bycatch, and so it was discussed at length, and they just felt like having that 30 or 40 percent buffer was being too risky.

DR. TRAVIS: If I could add to that, just to clarify, this is the number of vessels active in offshore waters, and so those estimates are overestimates of the number of vessels that are actually active in federal waters, the EEZ, and so, in that sense, there's already a buffer being built in.

We are looking at a way to estimate just how big of a buffer that is, because the traditional landings, landings and effort data, that we get from say state trip tickets and port agent reports, that data does not allow us to estimate how many vessels are active in the EEZ, but we have some other data sources that we're looking at, to see if we can come up with an estimate of how many vessels were actually active in the EEZ in those particular years. If that pans out, which I'm hoping it will, we'll have a sense of just how big that buffer probably is.

DR. KILGOUR: One last parting comments. Last year, sixteen permits were terminated, and so it's gone from having about thirty permits for the previous three years to half that last year, and so, to get to that 1,074 for the number of valid permits -- Right now, and I think we're at 1,452, something around there, it would be about ten years before we got there.

DR. MARX: Just a follow-up. I understand, but I worry about the active permits dropping too low. That's what we want to avoid.

DR. KILGOUR: I did not make that clear. That threshold number, it's based on the number of active permits, that 1,074, but the only thing that we can monitor is the number of valid or renewable permits, and so that 1,074 threshold is the number of valid or renewable permits. When that becomes 1,074, then that

trigger hits. The number is based on the number of active permits, but the threshold is triggered on the number of valid permits. Did I say that correctly?

CHAIRMAN BARBIERI: Before we move on, Jeff, is that clear now?

DR. MARX: Yes, that was good. Thank you.

CHAIRMAN BARBIERI: Thank you, Morgan. Mr. Gill.

MR. GILL: Thank you, Mr. Chairman. To that point, Morgan, do you define active as any landings or some minimal amount of landings? How do you define active?

DR. KILGOUR: I believe that's defined in the document, but it's a vessel with offshore landings, any offshore landings.

CHAIRMAN BARBIERI: Any additional questions or comments or clarifications for Morgan and Mike? Seeing none, I think we are ready to proceed, Morgan.

DR. KILGOUR: That's pretty much it for this document. Actions 4, 5, and 6 are basically management actions that the SSC doesn't really need to discuss, unless you want to talk about transit provisions or eligibility measures. That's it for 17B.

CHAIRMAN BARBIERI: Morgan, do you think that you got enough feedback from the committee regarding the points that you're looking for for improvement of the document?

DR. KILGOUR: If I can be a little greedy, it would be good if we could get some feedback on not just Alternative 2 in Action 3, but Alternatives 3, 4, and 5, which are based on either CPUE, landings, or a combination of the two.

I know that the council has discussed these at length, and there's been discussion on the fishery needs to be managed for OY. If OY is set in that Action 2 at eighty-five-million-plus pounds of tails, then is there good rationale for having a threshold set at high CPUE, high landings, or a combination of the two, or juvenile red snapper bycatch? I believe that's Alternative 3.

CHAIRMAN BARBIERI: That's a great summary, Morgan, but it might make it easier on the committee if you can just kind of walk us through real quickly, in a very abbreviated way, just to help them see all the different options being presented.

DR. KILGOUR: Again, Alternative 2 is based on that OY that we've been discussing, and so that takes into account the sea turtle, the juvenile red snapper bycatch threshold, the CPUE, and the landings. Alternative 3 just sets the threshold number at the number of active permits in 2011, when the juvenile red snapper bycatch threshold was almost met.

Alternative 4 is based on the number of active permitted vessels in 2008, when the CPUE was the highest, and Alternative 5 looks at CPUE and landings and the combination of the two, and a lot of the -- The council has been asking questions of is it fair to set this threshold number at a value that would be potentially above a sea turtle threshold or just looking at CPUE or just looking at CPUE and landings and not taking into account these bycatch thresholds.

CHAIRMAN BARBIERI: Any thoughts from the committee? Jeff.

DR. MARX: Thank you, Mr. Chairman. I was coming here saying, I'm not saying anything today, but okay. Alternative 3, I think you can't really consider, just because if you're just looking at one bycatch threshold of the red snapper, you have to -- We can't look at just that, and so I don't like Alternative 3, I guess.

As far as 4 goes, the CPUE is good, but I think you said that that's a year when both -- Again, if we're not considering the bycatch from red snapper or sea turtles is not in there either, it's too dangerous. We want to avoid shutdowns at all cost, of course.

Alternative 5, again, the same idea there. You're just looking at CPUE. Alternative 6 is a little -- I don't want to say okay, but using 6 I think would be a good thing, just because you have those permits and that it would at least give us that buffer with active versus your valid permits.

I know, to your point that there's a buffer there, because most of them don't fish -- That's all offshore, but if you drop that valid permits to 1,074, like in 2, to be 1,074, you said it yourself, that it's not going to have 100 percent -- You're not going to have 100 percent of the active vessels. It's just not going to happen, and that could be a variety of issues, people just don't want to fish and somebody else who is a sea turtle lover could buy it and hold onto it. It's possible.

I think 6 is a little better, because we have those -- You have 2014, like we said, that was a very, very active year. It was

one of those years where there was a lot of participation, I would be willing to bet, and you have that 1,470 permits, and your active vessels are probably nowhere near that. Anyway, that's my comments, I guess.

CHAIRMAN BARBIERI: Thank you for that, Jeff. Matthew.

DR. FREEMAN: Just a question, for clarification. Looking at Alternatives 2, 4, and 5 and comparing them with Alternative 3, is Alternative 3 simply referring to effort or catch per unit effort, because it says when effort was highest, in Alternative 3?

DR. KILGOUR: It's specifically referring to effort, and so it's when it got closest to hitting that shutdown, because of juvenile red snapper bycatch. Is that clear?

DR. FREEMAN: It was. I just wanted to verify.

DR. KILGOUR: The one thing I want to point out, and I didn't discuss Alternative 6, is that's just setting the threshold based on the number of valid permits, which means that if it was Option 6a or 6b, we would have already have met that, because we're already below that, and so the threshold number would be higher than what's currently in the fishery, which could potentially open up permits, if the council chose to do that, for fishermen, which is something the AP was not wanting to have happen.

APPROVAL OF THE SPINY LOBSTER PORTION OF MARCH 10, 2015 STANDING, SPECIAL SHRIMP, AND SPECIAL SPINY LOBSTER SSC MINUTES

CHAIRMAN BARBIERI: Thank you, Morgan. I think that, since we are running a wee bit behind schedule, that, unless there are any other questions, substantive questions, or comments from the committee, that we're going to conclude the shrimp portion of the meeting and move on to convening the Standing, Socioeconomic, and Spiny Lobster SSC session. Thank you, Morgan and Mike.

For the committee's benefit, we have Agenda Items VII and VIII. Agenda Item VII is Approval of the Spiny Lobster Portion of the March 10, 2015 Standing, Special Shrimp, and Special Spiny Lobster SSC Minutes, and I would guess that this is a typo. That should be March 10, 2016, right?

DR. KILGOUR: That's correct. The last time the Spiny Lobster SSC met was in 2015.

CHAIRMAN BARBIERI: I see. The Standing and Spiny Lobster SSC should review and note any changes needed and accept the spiny lobster portion of the March 10, 2015 Meeting Summary, and then we will continue to the next item, to discuss the preliminary landings and some other decisions with quota monitoring for spiny lobster, but, first, let's go to Approval of the Spiny Lobster Portion of that meeting, the March 10, 2015 meeting. Any questions, comments, or suggestions from the committee regarding those meeting minutes? Seeing none, I think I need a motion from the committee to officially approve.

MR. GILL: So moved.

SSC MEMBER: I will second it.

REVIEW OF THE 2014/2015 AND 2015/2016 (PRELIMINARY) SPINY LOBSTER LANDINGS

CHAIRMAN BARBIERI: Thank you. With that, we have the minutes of the March 10, 2015 meeting approved by acclamation by the respective committees. That moves us to Agenda Item Number VIII, Review of 2014/2015 and 2015/2016, even though preliminary only, Spiny Lobster Landings.

The spiny lobster ACT was exceeded in the 2014/2015 fishing season, and the ACL is projected to be exceeded in the 2015/2016 fishing season. Because the ACT was exceeded, a review panel was convened. The SSC is asked to comment on the review panel outcomes and summary. The Spiny Lobster AP also met, and the SSC is asked to comment on the AP meeting summary.

If the ACL is exceeded, this will be the second time in a four-year period, and the whole system of ACLs and AMs will need to be reevaluated. As it is likely that the ACL will be exceeded, the SSC may decide to recommend reviewing the metrics for the spiny lobster ACL. I don't know if you have, Morgan, a presentation on this or if you can just walk us through the main points of the discussion.

DR. KILGOUR: Sure. I don't have a formal presentation. On the screen is the summary of the landings. We have since had more information for the 2015/2016 season since I got together your scope of work, and you will see that, in 2015/2016, with 99 percent of the landings accounted for, the ACL has been exceeded.

This is twice in four years. For the past three years, the ACT

has been exceeded, and so, as the amendment is written, where the ACL is determined, now the whole series of ACLs and AMs need to be reevaluated, and so I do have a two slide little PowerPoint, just to kind of review, just to review how all of these were calculated.

The spiny lobster ACT is the accountability measure. If the ACT is exceeded, then a review panel meets and discusses whether or not something needs to be done. The ACL is set to the ABC, and that was the mean plus or minus one-and-a-half standard deviations. The OFL was equal to MSY, and that's the mean plus two standard deviations.

Right now, the ACL has been exceeded, and we're I think just below -- We're 400,000 pounds below the OFL for the 2015/2016 season, and so the chances of exceeding the OFL are probably very small. The review panel met and determined that -- The mean is based on ten years of data, and those years of data were the ten years of lowest landings in the spiny lobster fishery, and so it's that mean plus one-and-a-half standard deviations.

When the review panel met the second time, this year in April, they discussed a whole bunch of different ways of recalculating the ACL and recommended that perhaps using the entire time series of data would be appropriate for determining the ACL, which would mean that the ABC would need to be recalculated from the SSC. If we wanted to move forward to the review panel summary --

CHAIRMAN BARBIERI: May I interrupt you there for a second? Just because we have so many new members on the committee, just to refresh your memories, for those older members, but, in terms of how the OFL and the ABC were set up, that basically, since implementation of our ABC control rule, our ABC control rule has a number of tiers.

Tier 1 is for a quantitative assessment, where you have actually development of a PDF, probability density function, of the distribution of OFL that can give us some probabilistic approach for estimating the probability of overfishing and coming up with that in a quantitative way, but there are some stocks for which we don't have a quantitative assessment and, in this case, we go to other tiers of the ABC control rule.

If you look at your briefing book that was distributed, there was an ABC control rule document, as approved in the Generic ACL Amendment, back in 2011, and it has all the tiers there. In this case, this was application of Tier 3a, and there are

different options within that tier that relate to the level of management risk that the council is willing to assume, given the situation, the stock, in question.

In this case, the SSC, given the nature of the spiny lobster fishery and the nature of the population structure, made a recommendation that OFL be based on the mean plus two standard deviations on that, and that the ABC be the mean plus one-and-a-half standard deviations, and so this actually follows the application of our ABC control rule. We are using some time series of landings, which I believe that Morgan will get into more detail now.

DR. KILGOUR: The previous ten years of landings -- I can't see, and I don't want to speak off the cuff, but I think it's 2000 to 2009. Those were the years that were used to determine the mean, plus that one-and-a-half and two standard deviations.

CHAIRMAN BARBIERI: If I may, again, just, for the benefit of the committee, when we were looking into applying our ABC control rule and actually selecting what period of landings to be used, we received all the historical landings, to date, at that point.

I think 2009 was the terminal year of landings that we had in front of us for spiny lobster, but information had been presented to the committee at that point that pointed out that there had been an increase, potentially, in natural mortality, due to a virus infestation on spiny lobster that was potentially, and this was not confirmed, that there was this spike in natural mortality, but the issue was brought up as a potential.

When the committee looked at this entire time series, beginning in 1991 and going through 2009, we basically identified two regimes, one, of course, ending right before 2000 that had the stock at a higher productivity level before that presumed spike in natural mortality and another regime that was lower in productivity and, at that point, that we were hypothesizing may be related to a decrease in productivity of the stock, given this virus or some other factor, that at that point was unknown.

Given this regime shift, the committee opted to use a shorter time series, beginning in 2000 and going to 2002, instead of using the entire time series of landings. John, can you add to that?

DR. JOHN FROESCHKE: Yes, and just, the other thing, when we did

this, this was done with the ACL/AM Amendment, and Steven could say this better than I, but there were also some criteria in there to select a period of likely ten years or better that was stable through time, meaning that there weren't big dips or regime shifts and things, and so it wasn't done just to select the lowest period of years.

It was done in a way that was tried to be consistent with the methodology that we were applying to many other species simultaneously. In this case, the period of stability just happened to be the most recent time we had available that happened to be lower than this, perhaps, earlier regime.

CHAIRMAN BARBIERI: Sherry.

DR. S. LARKIN: I'm not sure, and maybe we'll get to this later, but, as part of the review panel, when we met a year ago, we had really long discussions on whether or not this was a productivity shift or it could be caused by a whole suite of other external factors, and we -- I think I am speaking on the group, but we kind of had consensus that we weren't convinced that it was all productivity-based, which is why we later recommended a longer horizon, because it wasn't just a whole suite of socioeconomic shifts, kind of like shrimp, but it was -- There were storms that had happened and there were increases in gas prices that could have explained a lot of things, which is -- That's kind of the background on why we recommended the longer horizon, more recently.

CHAIRMAN BARBIERI: Thank you, and so that explains then how we ended up where we are. It was the stability and having a time series that's relatively stable, in terms of average landings without any major shifts, the fact that back then the committee, with less information, had hypothesized this potential regime shift in lower productivity, but then, as Sherry pointed out, the latest working group deliberations basically had kind of ruled out this regime shift as being biologically derived. Yes, Sherry.

DR. S. LARKIN: I guess stability is good, if you embrace it for the right reasons. I mean I don't know what the numbers look like with two standard deviations versus what the numbers look like if you compare it different ways, and I guess I'm actually a little bit confused about what we're debating right now. Is it the two standard deviations or are we thinking about the time horizon? What sort of decision points do we have to decide?

CHAIRMAN BARBIERI: I think we're going to get to those specific

questions. The stability issue, Sherry, is basically because when you have a catch-based, average-landings-based type of proxy for MSY that we can use as OFL, that we have a non-quantitative estimate of MSY, the rule of thumb that is applied is for you to look for ten years or better, if at all possible, of data that represents some stable period, and the idea being that if you can have many, many years at some stable level, that level should be considered sustainable.

It may not represent the maximum sustainable yield, but it is a sustainable yield that can be used, and this is, I think, from the Restrepo et al. first guidelines when they came out in 1997 and then there have been a whole number of data-poor MSY proxy estimation discussions that have come up that have focused on that, the justification behind the perceived need to have some stability in landings for you to estimate what would be a sustainable catch level. Steven, do you want to --

MR. ATRAN: "Stable" really isn't the right word. The right word would be trendless, no trend. You can still have the landings fluctuating wildly from year to year, but we're looking for a period when there was no obvious upward or downward trend which might indicate a change in the fishery.

CHAIRMAN BARBIERI: Morgan, do you have some of the actual action items for the committee to --

DR. KILGOUR: I should go through the recommendations from the review panel, because that's really what I need the SSC to comment on. You guys have pretty much discussed a lot of what the review panel already discussed. After they had all of these discussions, they made a recommendation to calculate the ACL based on landings from 1991 until the most recent landings of 2015/2016.

Instead of calculating it based on those ten years, which, coincidentally, were the lowest landings years, to use the entire time series. That way, we're not constantly hitting the ACT and ACL and having to have a review panel and discuss the ACL every year when nobody on the review panel felt that the fishery was in trouble.

Just a little history. There was a recommendation from the review panel, and the council sent a letter saying that -- They requested an ACL exemption for this fishery, and that was denied. It has to have an ACL, but we constantly are either bumping right up against this ACL or exceeding it, because the metric was using what happens to be the lowest ten years of

landings.

That's the first motion that I would like the SSC to comment on, is to calculate the ACL based on the landings from 1991 through the most recent landings of 2015/2016.

CHAIRMAN BARBIERI: Bob.

MR. GILL: Thank you, Mr. Chairman. A little more history. If you all that were present at the time recollect, we kind of backed into the ABC and OFL calculations at the time, and Dr. Powers was the one that provided the mechanism by which to do it. I say that, Joe, as a compliment.

What we did was to calculate the mean and then backtrack to an ABC and an OFL that we could agree on, and so the ACL resulted from that discussion. What we've got here in this motion, however -- I don't know what the number is, but my suspicion is that it will exceed the ABC, and so what we really need is a discussion on the mechanism for the ABC in two parts.

One is the choice of years and the other is whether or not we retain the mechanism that we currently have, but it seems to me, for this body, that's the discussion we need to have, because there is no sense in us concurring with the motion if it exceeds ABC, because we can't do it anyway, and so my suggestion is the conversation revolves around our ABC determination and whether we ought to change that or not.

CHAIRMAN BARBIERI: Excellent point, Bob. I agree completely. Any other points regarding this issue? David and then Jim.

DR. GRIFFITH: Morgan, I'm wondering what happened around the turn of the century here, because it looks like right before 2000 that there were real high catches, and then something happened, and they have been low ever since 2000. What happened?

DR. KILGOUR: Luiz discussed that, and there's been -- There's not a good answer. At the time, they discovered the PaV1 virus, and they thought that that might be what caused the fishery landings to go down, was perhaps the explosion of this virus, but that's not definitive.

There were also other -- Sherry brought up that there were other conditions, economic conditions, that changed. Fuel prices were going up and things like that that could have possibly caused the landings to go down, but the landings went down for

everywhere, and so not just for the spiny lobster fishery here, but throughout the Caribbean and in Mexico, and so they went down everywhere. They have since, for everywhere, started to rebound, and so there is no good answer. They pointed to this virus, but that was never definitive, and so they don't know.

CHAIRMAN BARBIERI: Yes, Bob.

DR. SHIPP: This falls under the category of old memories again, but it seems to me that at one time we didn't have any concern about spiny lobster, because all our larvae were supposed to have come from the Caribbean and any larvae produced by our stock was lost, and that was the situation, we thought, ten years ago. What has happened since then? Is this just a legal requirement that we set these goals? From the biology of the species, it seems like it makes no sense to worry about it, because our stocks are not self-sustaining.

CHAIRMAN BARBIERI: Thank you, Bob. Jim.

DR. TOLAN: If I remember, and this goes back to the bad memory conversation, but if I remember the last time we had this brought up, that was one of the very points, was we were relying on the Caribbean to supply Florida with larvae.

I am trying to go back and look and see if I was the one that opposed this motion about the timeframe, because, to me, it looked like, while there may have been some large perturbation to the stock in the early part of the 2000s, that the last ten years look to be a very slow recovery, and the stock was getting much better and better, and, setting the limit where we did, we're basically handcuffing these catch numbers, because we're always going to be bumping up to that ACL.

I am going back and quickly trying to see if I was the one who opposed this, but I think this stock is doing much better than we think it is.

CHAIRMAN BARBIERI: Yes, Bob.

MR. GILL: Thank you, Mr. Chairman, and, to that point, Jim, part of the rationale was looking at a -- At the time, looking at a possible maybe paradigm shift in the stock, we wanted to be a little bit conservative. Given the catch rates that we were looking at over that timeframe, it would have never hit the ACL, and so it was a conservative but non-capping, if you will, consideration in there as well. Now, everything is improving, and so, in retrospect, it is inhibiting, and that's why we're

talking about it today.

DR. TOLAN: Mr. Chairman, just a chance for a rebuttal. I certainly agree with that. I think the point I was trying to make earlier was clearly, in the history of the stock, those catch numbers, those high, high levels, were sustainable and then something happened and they were much, much depressed, but, over the last ten years, the last decade, it's been steadily climbing, doing much better and that it could approach those numbers again.

CHAIRMAN BARBIERI: Thank you for all of that. To clarify, I mean basically what we do as a committee is we would be reevaluating our previous recommendations for OFL and ABC for spiny lobster, and we do this on a regular basis, every time that we evaluate a quantitative stock assessment and that we have new estimates of MSY and we apply our ABC control rule and we come up with fresh, updated estimates of OFL and ABC.

In this case, basically, I believe this is all we're being asked to do, is to review the time series of landings that we used the last time for estimating the OFL and ABC and then apply our ABC control using that revised time series. As Bob pointed out, instead of making a recommendation, in terms of ACL, since this a council function, we actually just provide new values, updated values, for OFL and ABC. Mr. Gill.

MR. GILL: Thank you, Mr. Chairman. To move things along, it seems, to me, the methodology that we utilized is fine. **I am not aware of anything that I would recommend better, but I would like to make a motion that we use the time series of 1991 through 2015/2016 for calculation of ABC, according to that methodology.**

DR. SHIPP: Second.

CHAIRMAN BARBIERI: We have a second, and we have a motion on the board from Bob Gill and it was seconded by Bob Shipp. Is there discussion on the motion?

MR. GILL: It's for ABC calculation.

CHAIRMAN BARBIERI: Bob, to that point, may I provide a friendly amendment that perhaps you make this for both OFL and ABC, because that's already embedded in the methodology of our ABC control rule? John, do you have a comment?

DR. FROESCHKE: Yes, three quick points. One, this method, the

thing that always has given me pause, is, from a management or science uncertainty, it's sort of a bad thing. Given that our ACLs are set mean plus variance, we get bonuses for additional uncertainty, rather than some sort of penalty. That's sort of weird.

The other thing is, as trivial as these calculations are, it still is based on the foundation of independent observations and some sort of Gaussian-based distribution of your residuals, if you will. The time series are not independent, likely, and the time series is too short to know if you're meeting that assumption or you're not, and so it's, perhaps, minor that we're violating -- There are really only two things that we don't know for how we're doing with either of those, and so that's always sort of given me pause.

In previous meetings, I have given my two-cents on ways that we could do better at that. It's never really gotten traction, but there are ways that you could sort of re-estimate the degrees of freedom, based on those kinds of things, or use quintiles or something that you sort of have a known probability of exceeding.

CHAIRMAN BARBIERI: Thank you, John, and I mean I think those are valid points. Of course, the ABC control rule we are operating under now was not just approved by this committee, but it has been approved by the council itself and it's codified now, and so that's the rule that we have to apply until this committee decides to revise it and propose something different to the council.

I think that your comments are spot-on and very relevant, and we could actually -- I mean, from time to time, we have discussed the structure of the ABC control rule, and this something that we can perhaps count on you to help us develop some thoughts of different options and how to handle this going into the future, and so duly noted, but, as far as getting our business today, we need to apply the existing ABC control rule for what we have right now, and so there is a motion on the board. Walter and then Joe.

DR. KEITHLY: Thank you, Mr. Chairman. I'm a little concerned with this motion. Bob Shipp made the comment a while ago that, historically, we thought everything came from the Caribbean, which gave some latitude for a higher OFL and ABC. The document now suggests though that some genetic testing indicates that up to 40 percent of the stock is locally recruited.

As such, if anything, I'm hesitant to vote in favor or speak in favor of this motion, because, if anything, I think that evidence is beginning to point out that much of the stock is locally recruited and, as such, maybe we should be a little bit more precautious in our decisions.

CHAIRMAN BARBIERI: Morgan, to that point?

DR. KILGOUR: I was meaning to discuss that. There have been two papers that have come out about this recruitment. One still is -- I think it's in press now, and that is the actual genetic testing, and it's suggesting somewhere upwards of 20 to 30 percent of self-recruitment.

The 40 percent comes from a modeling paper that's looking at larval drift and not necessarily genetically-based, and so I just want to make that clarification for that. That genetic is somewhere between 20 and 40 percent, and we will know more when the results of that paper come out.

CHAIRMAN BARBIERI: Thank you for that, Morgan. I have Joe and then Bob.

DR. POWERS: Thank you, Mr. Chairman. I'm a little worried in terms of if we were to accept this motion. What is really the justification, because what I've heard is basically the justification is it's run into the limit and, therefore, we should change the limit.

I think, while I don't disagree with that, in terms of the context of spiny lobster biology, and I'm trying to remember, but the assessment themselves that have been done actually estimated some of these things, but I think we rejected those estimates, and so we fall back to this other position, but I'm still -- I would like to build up a little bit more of a record, because, basically, what I've heard is we don't like the limit because we've exceeded the limit.

CHAIRMAN BARBIERI: Thank you, Joe. Bob.

MR. GILL: Thank you, Mr. Chairman. A couple of comments. One, to Walter's comment about being a little more conservative, first of all, this is the longest time series that we've got, and, the longer the time series, generally speaking, the better, at least in my opinion, but it incorporates all those years of low landings and so that's going to depress whatever that number is from the previous ten-year landings history. I think that's got to build in conservatism, independent of how the larval

input and recruitment, et cetera, fall out.

To Joe's comment, I don't see this reacting to an ACL overage problem so much as when we established the ABC back whenever it was, six years ago, we did it out of concern with the data that we had that we needed to be really conservative, because we didn't know what we had.

We set an artificially low number, to try to protect against that eventuality. That eventuality, it looks like it's not the case, based on the current data, and, as Jim pointed out, we're climbing back to the old-time numbers of landings, and it looks like, instead of a regime shift, that we have whatever the event or events were at the time that caused the problem in terms of harvest, they are being mollified over time.

I think we're addressing a correction to the action that we made back when, when it looked possibly more severe than the reality of stock is.

CHAIRMAN BARBIERI: Thank you, Bob. Jim.

DR. TOLAN: Just a comment to Dr. Powers. Had this methodology been used on the first ten years of data, the ACL number we would have set would have never approached that in the last ten or fifteen years of data collection, and so I think using the longer time series - I think it's a pretty valid way to go, as long as we're using the same methodology to arrive at that ABC number.

CHAIRMAN BARBIERI: Okay, folks. We've had a lot of good discussion. Steven.

MR. ATRAN: Before you vote, I noticed the summary of the joint meeting of the Gulf Council Spiny Lobster AP and South Atlantic Spiny Lobster AP had some comments about this motion, and I didn't know if you wanted to have Morgan go over that or not.

CHAIRMAN BARBIERI: Yes.

DR. KILGOUR: Yes, that's true. I didn't get to the Joint AP Summary yet, but the APs had -- They made a similar motion, but they had a lot of discussion on the use of shorts, and those are counted in the landings data, and the short methodology is based on data that's about ten years old, and so the AP felt that there needed to be some more updated information on the current state of the fishery to update those mortality estimates, which are included in the total landings.

The AP actually liked the review panel's motion to recommend that the -- To calculate the ACL based on the entire time series, from 1991 through the most recent landings, but the AP also had something else that they wanted. They wanted it to be a priority species for size monitoring.

Tom Matthews, from FWC, noted that he felt that perhaps spiny lobster were growth overfished, and one thing that the AP wanted to recommend, that they spent a lot of time talking about, was they weren't so concerned with -- They felt that the ACL was the wrong metric to manage the fishery, and they thought that the ACL needed to be higher, but they wanted there to be some type of trigger that would force something to happen if the fishery was in jeopardy.

They made a motion to recommend that there be a lower landing trigger, where if this lower threshold was met two years in a row that the fishery be reviewed, because perhaps there is something wrong and it needs some adjustment. It made the recommendation that there be a lower landing trigger, based on the average of the three low landings years of 2001/2002, 2002/2003, and 2003/2004 that would initiate a review panel if those landings were below that trigger for two consecutive years.

They were really concerned with not so much the current state of the fishery. They think that it's fine and healthy, but if it drops below a certain level, perhaps that should be reviewed, to make sure that it's not in danger.

CHAIRMAN BARBIERI: Morgan, to that point, I mean my recollection is that this fishery is monitored now. It's managed with an ACT, right?

DR. KILGOUR: Right, but, right now, it's do you hit the ACT or do you hit the ACL? If so, a review panel is convened, and so these are upper limits. They were worried that perhaps landings are at a historic low for two years in a row and is there something going on in the fishery and perhaps management needs to come in and address this, because the fishery might be in trouble, and that wouldn't show up, because you wouldn't be approaching the ACT or the ACL, because those are only triggered if you exceed them.

CHAIRMAN BARBIERI: Okay. I think those are valid points to be discussed with the council, in terms of how it wants to manage the fishery and how precautionary we're setting management

triggers for the fishery, but, in terms of us setting what is the OFL and the ABC, we are a little more constrained by just straight application of our ABC control rule and really just the time series, the length of the time series, and what specific years we have there is what more clearly defines the values that are going to be subsequently derived.

I think that we've had very good discussion. We have a motion on the board, and it has been seconded. The committee recommends to use the time series of 1991 to 2015/2016 for an ABC and OFL calculation for spiny lobster. **Those in favor of this motion, signify by raising your right hand, fifteen; those opposed, please raise your right hand as well.**

MR. ATRAN: The motion passes fifteen to five.

CHAIRMAN BARBIERI: Any abstentions? Okay. The motion carries. Morgan, any other issues that we need to cover under spiny lobster? If not, this concludes our spiny lobster catch level recommendation discussion. Morgan, are there any other non-reef business items to be discussed under this session?

DR. KILGOUR: Not from me.

CHAIRMAN BARBIERI: If not, we are right on time for our break. Let's take a fifteen-minute break and reconvene at 3:45 for the Standing and Reef Fish SSC Session.

(Whereupon, a brief recess was taken.)

CHAIRMAN BARBIERI: We have just a little more to go this afternoon. Steven, I don't know if we need to get some of the Reef Fish SSC Members who have just joined us to identify themselves for a voice identification.

MR. ATRAN: That would be useful.

CHAIRMAN BARBIERI: We have John Mareska and we have Marcus and we have Robert.

MR. JOHN MARESKA: John Mareska, Alabama Department of Marine Resources, Reef Fish SSC.

DR. ROBERT ELLIS: Robert Ellis, Reef Fish SSC, Florida Fish and Wildlife.

DR. MARCOS DRYMON: Marcus Drymon, University of South Alabama, Dauphin Island Sea Lab, Reef Fish SSC.

CHAIRMAN BARBIERI: Thank you, guys. We are at the almost completing our agenda for today, but we are now starting our Standing and Reef Fish SSC session, and so the first order of business is Approval of the January 5 and 6, 2016 Standing and Special Reef Fish SSC Minutes. Bob.

APPROVAL OF JANUARY 5-6, 2016 STANDING AND SPECIAL REEF FISH SSC MINUTES

MR. GILL: Move approval.

CHAIRMAN BARBIERI: We have a move for approval of the minutes of the January Standing and Reef Fish SSC. Do we have a second?

MR. MARESKA: I will second that.

CHAIRMAN BARBIERI: It's seconded by John Mareska. Any opposition?

DR. KEITHLY: Mr. Chairman, I would just make a note that on Tables 4 and 5, it would probably be good to put in the units of measurement, OFL and ABC recommendations for the West Shelf stock of hogfish. The way it's written, it looks like 257 pounds, instead of 257,000 pounds.

CHAIRMAN BARBIERI: What page?

DR. KEITHLY: Page 8 and page 9.

CHAIRMAN BARBIERI: Pages 8 and 9?

DR. KEITHLY: Yes, Table 4 and Table 5.

CHAIRMAN BARBIERI: Thank you for that, Walter. I see Steven here taking notes, and I trust that those corrections will be made to the minutes. The motion by Mr. Gill and seconded by Mr. Mareska, given this modifications or corrections as suggested by Walter -- By the way, I just got an email. I've also got Jason Adriance on the webinar. Jason couldn't join us today, given the change in the meeting schedule, and so he is joining us through the webinar. Thank you, Jason.

For those members here, any opposition to us approving the meeting minutes from the January meeting, given the corrections proposed by Walter? Seeing no opposition, the minutes of the January meeting are approved, with the noted corrections. The second item on the agenda for us is SSC Members Serving as

Council State Designees and Mr. Atran.

SSC MEMBERS SERVING AS COUNCIL STATE DESIGNEES

MR. ATRAN: Thank you, Mr. Chairman. There is no handouts on this. This is just for discussion. We've been made aware that one of the states is considering appointing as a secondary designee to the council a person who is currently serving on the SSC.

The question has come up of can somebody who is on the SSC simultaneously be a state designee? This person, if they do get the appointment, I don't believe they would be the primary representative. They would be the substitute if the primary representative can't make it.

In the past, for people who are not state representatives, just university folks or whatnot who get appointed, they have resigned from the SSC when they get appointed to the council. Greg Stunz was the most recent example of that, I believe two years ago, but this is a little bit of a different case, where we've got a position where they can be designees.

We asked NOAA General Counsel if there is any legal basis for allowing or disallowing this, and her response was that she could not find any legal basis for saying that a designee cannot also serve on the SSC, and she suggested that the council discuss this issue and make a policy decision.

We wanted to get some input from the SSC itself of do we have a conflict of interest in a situation like this? Are there any concerns that we need to be aware of? Do you agree or disagree with somebody simultaneously serving on the SSC and being a state designee? I will throw it open to discussion.

CHAIRMAN BARBIERI: By state designee, you mean serving as a council member as well?

MR. ATRAN: That's correct. On the council, each state fishery management agency has a voting member on the council. Officially, it's the head of the agency, but he can appoint one or more designees to serve in his place or her place.

CHAIRMAN BARBIERI: I have Bob Shipp and then Bob Gill.

DR. SHIPP: I think Bob Gill may be about to say the same thing that I am, but I have found myself in a similar situation, being on the council and now on the SSC, and I would find it very

uncomfortable to serve in both roles. I do think that not only a conflict of interest, but there are various pressures that are inappropriate for SSC members that council members do entertain, and so, again, this is the first I've heard of it, but my knee-jerk reaction would be to oppose it.

CHAIRMAN BARBIERI: Thank you for that. Bob Gill and then Jim.

MR. GILL: Thank you, Mr. Chairman, and I echo Dr. Shipp's comments, but I would also add that I think it would put the council sensitive to the comment that that person could be voting twice on exactly the same issue, and, if it's a close vote in either one, be a deciding factor as to which way it goes, and my suggestion is the council shouldn't get anywhere near that. That just opens the door to all sorts of issues.

CHAIRMAN BARBIERI: Thank you, Bob. Jim.

DR. TOLAN: Thank you, Mr. Chairman. As a state employee, I will give you my perspective on this. My upper management tells me to come here to represent the state, but do so by providing the best available science advice that I can give. Now, that may be very different than if I'm sitting in front of the council providing state issues, and so I would be very much against this move.

CHAIRMAN BARBIERI: Thank you, Jim. Any other comments from other SSC members? Lee.

DR. ANDERSON: Well, I have a semi-different opinion. First, I am a current member of the Mid-Atlantic Council, serving as an SSC member here, and there are some differences, because there is not the conflict. Also, our council had a policy before the change in the rules where the SSC set the ABCs that we had -- I served as a member on both, and I think Dr. Nancy Targett also served on both, and so we did it, and I didn't find much of an issue, but if you guys are feeling very strongly about it -- I am just telling you what I think.

Sometimes, you try to make an artificial separation between science and policy. Since I'm a social scientist, I think they're pretty close, and so I wouldn't find a big objection to it, but I certainly wouldn't fall on my sword to have this guy remain on the SSC if he becomes an alternate.

CHAIRMAN BARBIERI: Thank you, Lee. Paul.

DR. MICKLE: I know I'm new and this is kind of an interesting

conversation, but, just thinking of scenarios in my mind, I can see myself, as a scientist, voting one way here and on the council voting another, because of the constituents that I'm representing. I would probably end up not liking myself very much and feeling very uncomfortable, and so I oppose it.

CHAIRMAN BARBIERI: Thank you, Paul. Walter.

DR. KEITHLY: I think this is an issue that the council should take up and make a decision. I just don't see any scientific basis for the SSC being involved in this decision at all.

CHAIRMAN BARBIERI: Okay. Thank you, Walter. Any other comments? I mean I don't see a consensus from the committee going forward, but I see a leaning towards recommending against this person serving on both the SSC and the council. I don't know if there are any SSC members willing to make a more explicit, perhaps, statement to that effect or to make a specific recommendation. I mean our comments have been captured on the record and are there to inform the council. Do you, Steven, feel that you have enough information to get back with the council on this?

MR. ATRAN: Well, Walter Keithly is absolutely right that this is a policy decision for the council to make, but, since it does involve SSC members, I thought it was useful to get the feedback from the SSC, and what I'm getting of the folks who did respond -- We had six people talk.

Four were definitely opposed, one person was not opposed, but didn't really have a strong feeling, and then one person thought that this is not an SSC issue, and so, basically, you said you didn't see a consensus, and we haven't had any motions, but what I am hearing is that, generally, most SSC members who spoke are opposed to this. They feel there's a conflict of interest.

CHAIRMAN BARBIERI: That's my impression as well. Director Gregory.

MR. DOUGLAS GREGORY: It's a minor point, but it wasn't staff that wanted to bring this to the SSC. We talked about this at the council meeting, and the council wanted the SSC's input before they made a decision. I just wanted to clarify that. Thanks.

CHAIRMAN BARBIERI: Thank you for that, and we appreciate the council actually requesting our opinion, for us to weigh in on this, and we will make our comments noted. Bob.

DR. SHIPP: I just wanted to say that I don't disagree with Walter at all. It definitely is a council decision, but I was glad to hear Doug tell us that the council had requested this, and I think it legitimizes our conversation.

CHAIRMAN BARBIERI: Thank you, everybody, for this discussion. I think we have enough guidance for the council on how the committee feels about this topic, and that moves us into our next, last, but definitely least, item for today, which is a Discussion of Methods to Address Recreational Red Snapper ACL Underharvest. I think Mr. Atran has a presentation for us or a discussion.

DISCUSSION OF METHODS TO ADDRESS RECREATIONAL RED SNAPPER ACL UNDERHARVEST

MR. ATRAN: It's just a discussion and not really a presentation. We really haven't put together anything, other than some really preliminary documents, and I'm not going to go over those in any big detail.

As some of you may know, up until a few years ago, we had a problem with the recreational sector overharvesting its quota on a fairly regular basis, and so, finally, in 2014, I guess it was, we put in a 20 percent buffer. We basically set an ACT for the recreational sector that was 20 percent below their ACL and managed on that basis. The NMFS folks who do their projections on how long the season should be -- I'm not sure if they did anything different or not, but they started getting a little bit more accurate on how long the season should be.

In 2014, the recreational sector was below both its ACL and its ACT. Then, last year, which was the first year under sector separation, I believe that the for-hire component was below both its ACL and its ACT and the private recreational sector exceeded its ACT, but it was still below its ACL.

Even though we have the ACT, the whole idea is that we would like each sector to catch its ACL. That's what the rebuilding plan is based on, and so we had the council ask if we could come up with some way to allow the recreational sector to catch that underharvest if they don't catch their full ACL.

We originally came back to the council with the document that's up on the screen. I'm really not going to go into it, but it was to try to put together a process for evaluating what was caught under the original recreational season and project what

would end up being caught under the state season, because some of them are open much later than the federal season, and determine if it is possible to reopen the season, have a supplemental season say in October or some time later in the year, in order to catch the remainder of the ACL or maybe get up to 80 or 90 percent of the ACL. It will still leave a little bit of a buffer there.

This method would require that there be enough time for the National Marine Fisheries Service to do that analysis and that they be able to do an analysis with a reasonable degree of certainty and then that we reopen the season on relatively short notice, but it does fall, more or less, on the specific idea that the council had come up with.

When we presented this to the council, we got an alternate suggestion, and that's that we carry over underharvest to the following year, and there is, on the other document, which is Item 12(b), we have some proposed revisions to the National Standard 1 Guidelines with regard to the ABC control rule.

In these revisions, it says that the council can develop ABC control rules that allow changes in catch limits to be phased in or account for the carryover of some unused portion of the ACL from one year to the next, providing that there is a comprehensive analysis and we articulate within the FMP when this procedure can and cannot be used.

Then there is a little bit more specificity about carryover ABC control rules, and basically it says that the resulting ABC recommended by the SSC must prevent overfishing and consider scientific uncertainty consist with the council's risk policy.

What's happening right now is, since we generally set our ACLs at the ABC level, or at the allocation of the ABC for the sector, we can't go over that unless the SSC agrees to, at least on a temporary basis, allow an increase in ABC to account for that underharvest being carried over in the following year.

I should point out that, although these are proposed revisions, there is nothing in the current National Standard 1 Guidelines that would prevent us from doing this. We have, in fact, done it a couple of times. You may remember, back in 2010, after the BP oil spill, when fishing effort overall was way down in the Gulf, we had such an underharvest of the red snapper fishery that we did open up a supplemental season, in order to allow more of that harvest to be caught that year, but that was kind of a one-time deal.

What we're talking about here is actually having some process put in place so that, on a regular basis, we can come up with some way to allow the recreational sector to catch more of their ACL than what they're currently catching, especially when they're well below that level, and so, basically, we wanted to see if there's any guidance that you folks could provide in trying to set up some sort of a format, of a process, for doing one of these two things, either having a supplemental reopening later in the year or having a carryover of unused ACL to the following year, which would require that the SSC reevaluate ABC for that follow-up year. I think that's about as far as I can go without going really into the weeds on this.

CHAIRMAN BARBIERI: Joe.

DR. POWERS: Thank you, Mr. Chairman. Ideally, if we were to do a stock assessment each year, then you would take this into account and the quota would go up or down, the ACLs would go up and down, but, essentially, what you're doing here is saying, well, the stock is probably better off, and so, therefore, I'm going to give it a little kick.

One of the things you can do, in that regard, is to carry over completely, but you can also have some sort of discounted carryover, and the discount would be something like E to the minus-M, that you're basically saying that the survival -- Take out some of the survival and that sort of thing, but I would also comment that what about the other side, when it's over? Are you going to carry those over to the next year? What's the process for doing that? I think it needs a little bit of thought here.

CHAIRMAN BARBIERI: Dr. Crabtree.

DR. ROY CRABTREE: Just a couple of points. To the last point Joe made, there is a payback provision now in the red snapper accountability measures. If we go over the ACLs, we pay it back the next year.

I would also point out that, with the carryover provision here, I don't view this as just the recreational. The commercial sector is under by several hundred-thousand pounds almost every year, and so, presumably, if we do this, we would carry over both sides of it, but we added the payback provision in, I think, in 2013.

CHAIRMAN BARBIERI: Any other thoughts or comments from the

committee regarding this issue? Joe, if I understood what you said correctly, one thing is for us conceptually to think that this is okay. Another thing is to try and develop some kind of process for getting there and putting a little more thought into how we would come up with that carryover and how that would be implemented over one or multiple years, depending on how it happens.

DR. POWERS: Yes, and the point I'm trying to make too is that, if you actually did an assessment each year, you would take this into account, and so what you're trying to do here is sort of quasi adjusting for the assessment, and I am not convinced that it would be a one-for-one sort of a relationship.

CHAIRMAN BARBIERI: Right. John Mareska.

MR. MARESKA: I was wondering if there is any legal issues, because, during the regular season, the projections are based on the ACT, and, from what I read, we're trying to change -- If we reopen the season, now the projections we're based on will be reaching the ACL.

MR. ATRAN: The rebuilding plan is based upon the ACL being caught each year, since the ACL is set equal to the ABC. The ACT is really an accountability measure. It's because in the past we've gone over our quota so often that we shoot low. We aim low, so that if we end up hitting high that we're still under the ACL, but if we're under the ACL anyway, is there some way that we could let the recreational sector catch more of that ACL?

As far as legal issues, I'm sure there will be legal issues that come up, but, right now, as far as setting the initial season, we are setting the season based on the ACT. Again, we're not concerned with exceeding the ACT. We're concerned with exceeding the ACL.

MR. MARESKA: Yes, and I guess that's what causes concern, is you're basically -- If you don't achieve your ACT, now you're shooting for the ACL, and so you basically just removed your accountability measure, because, if you open the season again, you could easily just exceed it again, and so -- But, as Dr. Crabtree pointed out, if you go over, then you have to pay that back.

CHAIRMAN BARBIERI: Yes, and, since Dr. Crabtree is here, maybe he can help clarify that issue.

DR. CRABTREE: I think you make a really good point there. The way I had envisioned this working, with the reopening, is say we fished and we were one-million pounds below the ACL. We would then take that one-million pounds and set another ACT on it with a buffer and then set a season to catch that ACT, and so if it was 20 percent and we had a million pounds, we would then try to catch 800,000 pounds. It might be, because the amount is smaller, that we would need to have a larger buffer even at that point.

There are a lot of logistical issues with this though, because Steve is right that there are problems with getting the landings and knowing what was caught, and then I have pointed out to the council, for this to have any hope of working, we would need to have a much closer coordination with the states, in terms of what they're going to do than we have been able to achieve, and so it seems to me that the carryover is a more straightforward way to deal with it over the long term.

CHAIRMAN BARBIERI: Thank you. Jim.

DR. TOLAN: Thank you, Mr. Chairman. When I first saw this, it seemed reasonable enough, given that the overage is taken away immediately the following year. Some of the data constraints and how quickly we can get to those final numbers, I think that's been addressed, but, just knowing the direction that we've gotten from the council when they're looking for constant catch streams for years into the future, this seems like an accounting nightmare. It seems to be really tough to implement.

CHAIRMAN BARBIERI: Ben.

DR. BLOUNT: I was just thinking of another option. That is, instead of extending the season, add that amount to the following year or to the following period, when the ACL and the ACT has been measured or set. That would give you a little bit of time and leeway in terms of dealing with the accountability measure, perhaps, or maybe it raises other questions too, but it just seems to me that that's another possibility.

CHAIRMAN BARBIERI: Unless I misunderstood this, Ben, isn't this exactly what is being proposed? By pushing, transferring, that amount, that poundage of fish, you're going to be adding, potentially, to the following year's season.

DR. CRABTREE: Yes, I think that's basically right. I agree with Joe too that some discounting would likely be appropriate, but if we had a million pounds of fish uncaught below the ACL,

we would then take some fraction of that and add it into that sector's quota for the next year and set the buffer and set the season. They would pick up some additional fishing time for that.

DR. BLOUNT: Okay. Thank you.

CHAIRMAN BARBIERI: David.

DR. GRIFFITH: I was just curious about what is the season right now? It's very short, isn't it?

MR. ATRAN: On the private recreational -- The season just opened today, and we've got nine days for the private recreational component and forty-four days for the for-hire industry. Both of those are fairly short.

CHAIRMAN BARBIERI: Yes, Lee.

DR. ANDERSON: It just occurs to me, and I may have missed something here, but if this happens regularly -- The idea of a target is to make sure you don't get to the ACL, but if you are consistently hitting the target, that means maybe your accuracy is okay and next year you can increase the ACT, and hopefully you will continue to hit the ACT and still be below the ACL. I may be missing something, but that seems to make sense to me.

CHAIRMAN BARBIERI: Very good point, Lee. Any other comments or questions or clarifications regarding this issue? Yes, Ken.

DR. ROBERTS: Mr. Chairman, this is so new to me, but something is on my mind here that -- As I listen to the conversation, I am thinking that we generalize too much that recreational group is a homogenous group. We spend a lot of time discussing ways of making it even less homogeneous than it is now, in terms of either a permit system or a share, ITQ, system.

If you do that, within-year adjustments, late in the season, let's say, those people who have those shares, they have the option to take them all year anyway, and I would be opposed to giving somebody more share later in the season if they hadn't used what they have already used. I think the classes of people are getting ready to be quite different, and I think we just need to take that into consideration for the in-year adjustments. Carryover is, I think, a different thing.

CHAIRMAN BARBIERI: Do you want to clarify that, Dr. Crabtree?

DR. CRABTREE: Well, there are those concerns, and I think the council would have to figure that out, but I think, if you're conceptually okay with the idea of some sort of carryover provision, then staff could work on potential processes, and then I think the issue would be, as Joe brought up, the discounting and what is safe to do.

CHAIRMAN BARBIERI: Yes, Steven.

MR. ATRAN: If we were going to go with a carryover type of function -- As I said, we would have to come to the SSC and ask the SSC to reevaluate, at least for one year, what the ABC could be, and we would not have a new stock assessment. We might have some new landings information, but that would be about it, and so one question is what information would the SSC need in order to make a decision of whether or not to allow a temporary increase in the ABC?

CHAIRMAN BARBIERI: Joe.

DR. POWERS: I think that about the only thing you could do is just go back in history and look at the stock assessment at some previous point in time versus what the actual catches were and then go through sort of a could-of-would-of-should-of kind of analysis, in terms of trying to say what the differences in the ABC, et cetera, would be if in fact you had carryover versus not, but, again, it would be based on prior history.

CHAIRMAN BARBIERI: Just to add to that a little bit, I mean another thing is perhaps to put a provision there that would require a three to five-year evaluation of the performance of this new methodology. As you are carrying over, if that's bumping against your ACT there and you are readjusting your ACT, but it's still consistently being below your ACL, I mean the actual impact on the biological production on the stock has really no impact at all. We can look at that performance over time and have time to adjust, if necessary. Yes, John Mareska.

MR. MARESKA: Again, red snapper is such a mess. Has the council considered using both of these options? In a season where the ACT is not achieved, then you could have an extended season, but they're trying to get closer to the ACL, and that was one of the considerations, is to open it when they don't achieve the ACL. Possibly that smaller amount could go carry forward to the next season.

CHAIRMAN BARBIERI: Yes, Steven.

MR. ATRAN: If I understood what you said, I think Roy already has authority -- If the ACT has not been met, since that's what the season is based on, I believe he already has authority to reopen a season, in that case, but not if it's based on the ACL, because our seasons for red snapper are based on the ACT.

MR. MARESKA: I guess I'm just trying to get an approach where we don't have to reevaluate the ABC on an annual basis.

CHAIRMAN BARBIERI: Yes, Jim.

DR. TOLAN: I guess, going back to my original point about the bookkeeping nightmare, I can easily see this -- The season goes for nine days and you don't quite catch the total number. October rolls around and you reopen it. A bunch of people go fishing, and now you go over the number totally, and then it gets to, okay, we've got to subtract that amount from the next year. I just think it's a bookkeeping nightmare.

CHAIRMAN BARBIERI: I think that, for that very reason, this proposal is to, instead of having a second mini-season within the same year, you actually would transfer that to the following year. Dr. Crabtree.

DR. CRABTREE: That, to me, is the cleaner way to do this, because I have the concerns you raised, Jim, that we reopen in the fall and then we go over, but I think it's essentially that you would set up a control rule that prescribes how you're going to handle this and how you're going to do it, and then the SSC would need to meet early in the year and review the landings and apply whatever pre-agreed control rule is there, and here's your new ABC.

It seems, if all that was all worked out, it would be a relatively straightforward thing to do, and then we would set up some sort of framework by which the Fisheries Service makes the adjustments. Then that would be factored into the season that year. The buffers remain the same and everything, and so I don't think there is any additional risk entailed in going over the ACL than what we have now. It would allow some more of the ACL to be caught up, which Steve is right. I think that is what the recovery is based on.

CHAIRMAN BARBIERI: Yes, Jim.

DR. TOLAN: I may have missed that, but I guess the reason I was stressing that situation so much is, in the document we were provided, all the draft actions and alternatives dealt with in

season and what's the definition of a weekend? Is it from Friday to Saturday? I guess that's why I was so focused on that accounting nightmare.

DR. CRABTREE: Yes, it was, and we talked a lot about that, and I think it was some of that nightmare that led us to try to think of an alternative way to catch the extra fish without getting into all of those accounting nightmares.

DR. TOLAN: Then I rescind my nightmare.

DR. ISELY: Another practical matter to think about is even if you're 10 percent below the ACL, that's what, an extra day? Who is going to us an extra one-day season in the fall? That's not terribly useful.

CHAIRMAN BARBIERI: That's another good point, Jeff, from that socioeconomic perspective of optimizing the utilization of the resource. Yes, that's a very good point. Dr. Crabtree, do we have any idea when the Fisheries Service will have completed this revision of NS 1 and that document, the official document, will be published in the Federal Register?

DR. CRABTREE: I think the goal was to get to a final rule late in the summer or early in the fall. It should happen before we take a final action on it, but I tend to think Steve is right. I think we have the authority to do this under the existing rules and things, but, at any rate, I think, before we implemented the process, this should be final.

CHAIRMAN BARBIERI: Yes, and I don't disagree with that one bit, but it's basically because, for many people, having that revised NS 1 document may provide some peace of mind and perhaps explain some more of the background and give some more of the structural components of how this would take place, and it might help us work through some of this discussion. Any other points or questions?

My take-home message here, unless anybody on the committee disagrees, is that we have -- Basically, the SSC, by and large, agrees, conceptually, with the use of this process. The devil is in the details, and we would like to see a more detailed document outlining the procedural steps to get to implementing this provision. Joe.

DR. POWERS: I have a technical question on Table 1 in I guess it's the other document for this. It's referring to the federal season. Is this all the catches, including both federal and

state waters, that are in this table?

MR. ATRAN: Yes.

DR. POWERS: Are the state water ones available to the public, as of yet?

MR. ATRAN: For the most recent year? I don't know what we've got under the current year. Except for 2015, these were final landings for earlier years. 2015 is still preliminary, as of when this was written. This was originally prepared for the January council meeting, and so we obviously didn't have all of the 2015 numbers.

I don't know if -- John is not in the room anymore, but somebody who is more involved in the data collection process might be able to tell us when the state numbers are available. I don't know exactly when they're finalized. I know Texas only reports their numbers twice a year, and so we rarely have the final numbers from them until very late in the year.

CHAIRMAN BARBIERI: Okay. Any other questions or comments on this item? Seeing none, I think that this completes our meeting for today. We are about thirty minutes ahead of schedule, but, considering that we're going to have a very full day tomorrow, my feeling is that we just recess a bit earlier and come back tomorrow feeling all fresh and renewed.

SSC MEMBER: The discounted carryover.

CHAIRMAN BARBIERI: Yes, exactly. We will apply the discounted carryover to tomorrow, in terms of those thirty minutes. We will be recessing now, and for those of you on the webinar, just to let you know that tomorrow that we are starting at 8:30 a.m. It's 8:30 instead of 9:00 tomorrow, in this same room. Thank you.

(Whereupon, the meeting recessed on June 1, 2016.)

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June 2, 2016

THURSDAY MORNING SESSION

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The Standing, Reef Fish, Socioeconomic, Shrimp, and Spiny

Lobster Scientific and Statistical Committees of the Gulf of Mexico Fishery Management Council reconvened at the Hilton Westshore Tampa Airport Hotel, Tampa, Florida, Thursday morning, June 2, 2016, and was called to order at 8:30 a.m. by Chairman Luiz Barbieri.

CHAIRMAN BARBIERI: Welcome back to the meeting. We were notified that Clay Porch's flight this morning got delayed, and we need to rearrange our agenda to accommodate the little bit of delay that we're going to have for Clay's item. I'm glad to see that Matt is already here, but our first agenda item this morning, we're supposed to start with the Review and Approval of the Terms of Reference for the Gag Update Assessment and then we had the SEDAR Schedule.

We would bypass Clay's short presentation and, considering the fact that Ryan is not here and our goal today is, if at all possible, to finish today, I would say, if Matt is ready, that we would do a big rearrangement, because I don't see Mike Larkin in the room either to give us the Gray Triggerfish Presentation. I don't know if Mike is scheduled to give this by webinar or --

MR. ATRAN: No, he's going to be here.

CHAIRMAN BARBIERI: In person, but --

MR. ATRAN: He probably got stuck in traffic like you did.

CHAIRMAN BARBIERI: Most likely. Matt, if you are ready -- I saw you get your cup of coffee, and so the fuel is there, and we start with the SEDAR 45, which is a great way to start the day, with the stock assessment review. While we get Matt's presentation together, I wanted to remind the committee that this is an update assessment, right, Matt?

DR. MATTHEW SMITH: It's a standard.

CHAIRMAN BARBIERI: It's a standard assessment, but, one way or the other, this assessment -- This is the relevance of the type of assessment it is, but it has not been reviewed by CIE, and so this review is really up to the SSC, and so I ask you to, as always, look very carefully at this assessment and help us go through the whole process and evaluate, and I'm sure that Matt and Dan did a fantastic job with this assessment, but, still, just a reminder. Yes, Steven.

MR. ATRAN: Matt, just a reminder to those of us, and maybe notifying those who never heard, but, if it's not already in

your presentation, could you briefly describe what's different between a standard assessment and a benchmark or an update? I know you already partially explained it.

CHAIRMAN BARBIERI: Right.

DR. SMITH: Yes, and are we ready?

CHAIRMAN BARBIERI: We're ready.

SEDAR 45 VERMILION SNAPPER STANDARD ASSESSMENT

DR. SMITH: Okay. Well, this is, as was announced, the SEDAR 45 Gulf of Mexico vermilion snapper stock assessment review that was conducted primarily by myself, Matthew Smith, and a colleague of mine, Dan Goethel, who is currently overseas, and so he left me on the hook for doing this, which is fine.

As Steven alluded to, I wanted to, right off the bat, tell you the difference between the benchmark, the standard, and the update assessment, because I was here for the gray trigger, which I think might have been one of the first standard assessments that came before this review group, and there was some confusion around exactly what was involved in that process.

The terms of reference for this assessment was that it was a standard assessment. To my understanding, this was designed to be kind of an intermediary between a full benchmark assessment and an update assessment, with the goal being to maintain the shorter timeline of an update assessment, but to still allow for flexibility in the inputs that could be changed and updated in the stock assessment.

As we go through this standard assessment, you're going to see a lot of differences in life history, all the data updates, the indices being added, and it's going to look a lot like a benchmark, but, as Luiz alluded to, it was not a full benchmark. It has different review standards and limitations on what we can change.

The things that we are allowed to change, or we were encouraged to look at, were decided prior to this in the terms of reference, and those were that we were supposed to look at the new fishery independent indices of abundance, which hadn't been included in the vermilion snapper assessment, to date.

We were to evaluate discards and decide whether they should be included or not and specifically look at episodic events, like

red tide, and how it might impact natural mortality rate, as well as other life history characteristics, but specifically to look at natural mortality rate. Those were the three specific things that we were tasked with in the terms of reference for this assessment.

Outside of that, we obviously were able to update the data, and we did a thorough overhaul on all the life history for this species, as well as the indices and the landings, and then develop a new base model and project stock status. That, in a nutshell, is what we were tasked with for this assessment. Are there any questions on that before we move on? I just want to make sure everyone is on the same page.

A brief outline of what I'm going to go through today. This presentation is kind of long, as I guess most of these are. Some slides I'm going to move through fairly quickly, and other ones I will spend some time on, because they were major changes and have important ramifications down the road in terms of stock status projections.

We will have a brief assessment history, like one slide on that, and then we'll review the data inputs and the changes we made to them. We will go over, briefly, the continuity model that was produced, and then we'll get into the new base model, all the assumptions, model fit, results, and diagnostics from that, and then we'll end with projections.

The assessment history, starting back in SEDAR 9, I think in 2005, was the first time there was enough credible age data to do an age-structured production model for vermilion snapper. At that time, the SSASPM model was put into place and used to assess and was accepted as the model for assessment.

In 2010, during the update, that model was used again, with the difference being a change in the way that the shrimp bycatch was handled. Briefly, for those who may not be familiar with it, shrimp bycatch used to be handled as just a fixed bycatch every year, which was the median of all the bycatch estimates from the time series, and that was done because there was little faith in the annual estimates of shrimp bycatch, and so they tried to even it out.

The change was, rather than using that fixed removal, is that they did what was termed now as super-year, which allows the annual bycatch to be taken from a distribution, sort of sampled from a distribution, which is influenced by the shrimp effort index that is centered around that median that was previously

fixed. Rather than have the bycatch stay fixed through the whole time series, it is centered around a median, but allowed to vary, depending on the shrimp effort index, which was a significant change at the time.

Also, during the update assessment, a Stock Synthesis exploratory run was done, alongside the SSASPM model, as a proof of concept for that software going forward. The graphic on the right-hand side of the screen there just shows the results of those two runs overlaid on top of each other.

The blue line there is the SS run. The red line is the SSASPM run, and so, at that time, Stock Synthesis was deemed as a credible alternative and put forward as the model to be used during the next assessment, which is the current one, the SEDAR 45 assessment. For this assessment, the Stock Synthesis modeling framework was what we used to conduct the assessment.

The data sources, like I sort of alluded to off the top, we went through and updated everything we could get new information for, and so we did all the life history. The length/weight conversions were changed. We switched from total length to fork length for this assessment.

We redid the growth curve, reproduction, natural mortality, all the fishery-dependent data, including landings. The shrimp bycatch and the age compositions from them were updated. Discards for the recreational and commercial sectors were evaluated, but they were not adopted, and we will get into that later.

The fishery-independent indices were also assessed and ended up being added. All three of those were added to the assessment, and so we updated pretty much everything, as well as introduced at least three new sources of data.

The life history, like I said, we converted from total length to fork length, and, unlike the previous assessment, which just fit a regular Von Bertalanffy growth curve to the age/length data, we fit a truncated or censored growth curve this go-round, which allows for the difference in the observed age/length relationship from the landed data -- A lot of this data is coming from fishery-dependent sources, commercial or recreational.

You get the landed age-length relationship, but not necessarily the catch, and so there was a minimum size limit in place in the vermilion snapper, and so the assumption is, in the catch, some

of those fish that are below the minimum size limit, hopefully all of them, are thrown back and they're not available to be sampled at the dock for the age/length relationship.

The truncated, or censored, growth curve takes into account that loss of data and fits slightly different than a traditional Von Bertalanffy, and we think it's more appropriate when a minimum size regulation is in place, and so that was used for SEDAR 45, and we switched from a constant natural mortality rate, which was used in the past, to a Lorenzen natural mortality schedule.

This is the growth in the top right figure, with the two lines on it. The red line represents the SEDAR 9 growth curve and this blue line is the new SEDAR 45 growth curve. There is quite a bit of difference between these two. It was an issue of conversation at the data workshop, and so a big thing is the change in L infinity.

Part of that is the switch from total length to fork length, and so we lose some there. The other part, as I said in the previous slide, is that the fit to the scatter of age/length data is going to be shifted down a little bit, because of the truncated model that was used, because it's accounting for, or trying to account for, a theoretical absence of points here, at about 250 millimeters, or the ten-inch minimum size limit.

That should have been there from the commercial fishery, but they aren't, because they weren't available in the landed catch. The K, the rate of growth, the new model suggests that these fish grow much faster than they did in the past. Part of that change is because, in the past, they basically started that an age-zero fish was roughly ten inches long, and so there wasn't a whole lot left to grow with these fish, if you start out at ten inches long.

Now that the model has adjusted and fit the data a little bit better, at least in the younger age groups, the rate of growth has increased quite a bit, and the size at age zero has gone down quite a bit.

CHAIRMAN BARBIERI: Matt, can I interrupt you for a second, just to mention that this is a long presentation and you're going to be covering a lot of material, and do you mind if the committee interrupts you to ask questions during the presentation?

DR. SMITH: No, not at all. It's easier for me, actually, if I get them while I'm thinking of the topic, rather than trying to come back later.

CHAIRMAN BARBIERI: Yes, exactly, and so, on that point, Kai Lorenzen.

DR. LORENZEN: A couple of quick questions about the growth. One was how exactly does that truncation work? Are you assuming a selectivity pattern or are you -- Is it a purely statistical approach that you're taking to -- How does that model work?

DR. SMITH: It's a purely statistical approach. It's assuming a normal distribution around the growth curve, the mean of the growth curve, and it's assuming that that distribution is truncated at whatever the minimum size limit at the time that that data was collected. If it was a ten-inch minimum size limit, you're assuming that basically a truncated normal from the data you observe -- Then it kind of fills in the data that should be in the catch, rather than the landings, and then it fits the curve to the catch.

DR. LORENZEN: Following on from that, have you explored how much of that change in the growth curve is due to the use of the truncated model versus what you used before and due to the change from standard to total length?

DR. SMITH: We did not dig down into the individual components of the change, and so I can't tell you what percentage, necessarily, of the difference in L infinity, for instance, was due to the shift from total length to fork length or from the adoption of the new model. We didn't dig down into the specifics on that one.

MR. ATRAN: I am just wondering, since you said, on this model, you switched from using total length to fork length, on the Von Bertalanffy growth curve for SEDAR 9, do these parameters reflect that change or was there any change in the parameters?

DR. SMITH: No, the parameters that are shown there are still in the units of total length.

MR. ATRAN: Okay, and so the red line is in terms of total length and the blue line is in terms of fork length?

DR. SMITH: Correct.

MR. ATRAN: So you would expect the red line to be longer than the blue line, a larger length.

DR. SMITH: Yes, we would expect that to be a higher L infinity,

because you're cutting off the whole caudal fin, or not the whole caudal fin, but part of the caudal fin for the fork length.

CHAIRMAN BARBIERI: Go ahead, Matt. Thank you.

DR. SMITH: Moving on to reproduction, this is going to be a recurring major issue in this assessment. We believe that the changes we have made are for the better, but it's a significant change, and so I'm going spend some time on this and make sure everybody is okay with it before we move on.

We will start with the right-hand side of the plot, which is pretty straightforward. We have the logistic maturity curve and the power function for fecundity at length. Both of these relationships are in terms of length. They were input into the model in terms of length and then converted to age within SS, using the growth curve that was input, and so that conversion was done internal in the Stock Synthesis assessment. We verified it independently, just using an Excel spreadsheet, to make sure everything was doing what we thought it should be doing, and it was, to the best of our knowledge.

Moving to the panel on the left, with the two lines on it, the blue line, again, is the SEDAR 9 update fecundity-at-age and the red line is the new SEDAR 45, and there is a marked difference between these two. Previously, the fecundity-at-age comparison, or relationship, was suggesting that the difference between a one-year-old vermilion snapper and a fourteen-plus-year-old vermilion snapper was almost negligible, in terms of their contribution to the spawning stock.

The new relationship is saying quite the opposite, that as these fish get longer and older that they contribute quite a bit more to the spawning stock biomass. This has major ramifications in terms of stock status and the projections that we'll get into, and the main difference, as best as we can tell, from digging through the old literature and looking at the inputs that were used in the previous models, it was that, at the time of SEDAR 9 and the update, there were length-based maturity and fecundity relationships, as well as age-based relationships that were produced.

The age-based relationship was fit with a linear model. The length-based relationship was fit with a power function. When they were switching to the age-based assessment model, they used the age relationship, which was linear, and they also used the maturity assumption that there was zero percent maturity at age

zero and 100 percent thereafter. When you combine those two things, you get the kind of linear, gradual linear ramp, that you see with the SEDAR 9 fecundity-at-age comparison.

We believe that using the length is more appropriate. These fish, as we saw from the growth, can be almost any size at any age, so that, to say that a fourteen-year-old -- Rather than use the fact that that fourteen-year-old was only 200 millimeters long, for example, that the body size of the animal is more appropriate for determining their ability to produce eggs, their fecundity, rather than the age, since there's not really a strong length/age relationship.

We were fairly comfortable with our decision to go ahead and just use the raw length relationships that we put into the model, and we also have a lot more faith in the fecundity-at-age relationship that we got. We believe it is much more appropriate for this species, but, again, it is a dramatic difference from what was assumed in the previous assessment, and the implications of that will trickle through the entire rest of the presentation. If there are any questions on this, please ask them now or later, if you think of them later.

CHAIRMAN BARBIERI: Yes, Paul.

DR. MICKLE: A quick question. With vermilion snapper, the literature -- With other species, if you have an older fish and it's still small, like you pointed out, but some literature on other species suggests that older fish spawn more frequently, not dependent upon size, and earlier within the season or later in the season. The occurrence of spawning could potentially occur and produce much more of an output. Is there anything that you know of literature as far as the reproduction histology of this species?

DR. SMITH: Not that I know of that gets into differences by age. We did reassess the spawning frequency as part of this, and it was reduced from eighty-seven spawns a year to eighty-two spawns a year for vermilion snapper, but I don't believe the sample sizes were there to subset by age, per se.

It just was just lumped all together, and so I do not know whether older fish are going to be spawning more frequently and, to my knowledge, I don't know of anything in the literature that would confirm or deny your suspicions. It's certainly a valid consideration, but, with the information we had at hand, we didn't break it down that finely.

CHAIRMAN BARBIERI: Any other questions for Matt? Matt, I have a quick one. You talked about coming up with the fecundity estimates based on length, but then I see the function there expressed in age. How did you make that conversion?

DR. SMITH: Right, and so that conversion is done internally in SS, and we also did it externally in Excel, just to make sure we were getting what we thought we should. It uses the Von Bertalanffy growth equation, which is input, to basically convert length to age, and so we see that it uses the Von Bertalanffy and it uses the maturity relationship and the fecundity at length and then it's basically scaled by the spawns per year, and so it's scaled by the fact that we assume that we have eighty-two spawning events per year, to translate all of that into a fecundity-at-age relationship.

CHAIRMAN BARBIERI: I mean could you or did you do any assessment of then what the uncertainty would be?

DR. SMITH: Around this relationship?

CHAIRMAN BARBIERI: Yes.

DR. SMITH: No, there was no implicit uncertainty, I believe. I'm trying to think back through here. There was uncertainty incorporated with the growth curve into the model, and so that would have been taken into account within SS, but with the maturity and the fecundity relationship, those were input without error, and so there would be some error associated with this, in terms of the model using the fecundity relationship to produce recruitment estimates, but it would only come from error in the growth curve, I believe.

CHAIRMAN BARBIERI: Right, but there should be some level of variability in fecundity-at-age, right, but that couldn't be captured in this analysis as is.

DR. SMITH: I believe -- It's not presented here, but I believe that any error that would have been incorporated in a fecundity-at-age relationship would come from the error that was input for the growth curve. We did not input, explicitly, error for logistic maturity or for the fecundity at length relationship.

I believe there would be some error, but it's probably not enough. I don't know if there is a way to explicitly input error for the maturity or the fecundity at length relationships in the current SS. There's a new build coming out, which will probably get more elaborate and more complicated, and we might

be able to do that in a future assessment, but, for this one, there is a way to input error for the growth curve. We did that.

The conversions were made internally, and that relationship was used internally to create recruitment events in the model, and I'm assuming it utilizes the error from the growth curve when it's doing that.

CHAIRMAN BARBIERI: I am thinking about the propagation of that uncertainty and, as you think about projections and you think about all the other outputs that we want to be evaluating, what would be the uncertainty associated with those.

DR. SMITH: It's a very valid concern, as we'll see when we get to the projections, which is, I believe, a somewhat chronic problem with these assessments, is that the error being forecast in the projections is nowhere near where we think is credible, and that comes up in these projections as well and we're going to have to work through that. Part of that is that a lot of the things we're putting in, we are doing some external analysis to do it and then inputting those into the model. At its base level, SS allows you to input very raw data and it, in theory, does all the calculations internally and will propagate that error through.

We have not gotten to the point yet, at least in the Southeast Center, where we're inputting data at the rawest form. We're still doing some external calculations on it. As our data sources improve and as we get better at using the software, we might get there, but, for now, we are not there yet, but there was that input with the growth curve, in this case, but not with the maturity functions.

CHAIRMAN BARBIERI: Thank you, Matt. Joe.

DR. POWERS: Just a quick comment. This graph on the left makes me question the blue line more than the red line. If you look at the actual parameter values, the fecundity/length relationship, the exponent is about three, and so what means is that basically the egg production, or fecundity, is more or less proportional to spawning stock biomass, and that's kind of the standard assumption anyway, and so I'm much more comfortable with this.

DR. SMITH: We are as well, and we went back and looked at the SEDAR 9 and the update fits to this. The fecundity at length relationship was very, very similar. Again, it had an exponent

very close to three. It was very similar to the fecundity at length relationship that we're using now.

The difference came when they converted to age and they fit to that. The best fitting model was a linear model and, as best we can tell, the results from that age fit were used, rather than the length at the time, and the consequences of that are shown on the screen, but we think going with the length is more appropriate for now, for this assessment and for future assessments.

CHAIRMAN BARBIERI: Yes, Steven.

MR. ATRAN: Just a comment. When you look at the previous slide and the graph that shows the age at length, it's such a huge variability of length at any given age that the fecundity at length can't be any worse than the fecundity-at-age. You've got huge variability there, and I would have more confidence in the length-based fecundity estimates anyway.

DR. SMITH: Yes, I don't have the -- I didn't pull the graphics from the previous assessment. I believe I have the working paper with me, and so if you want to see that after we break, I can maybe dig it up and we can look at it, but the fit to the fecundity-at-age from the SEDAR 9 was fairly poor. You had wide scatter at each age, which is what you're suggesting here from the length/age relationship, very wide scatter and a fairly flat linear fit to it, and the power function to the fecundity at length data, even back then, seemed to fit much better.

CHAIRMAN BARBIERI: Thanks, Matt. Go ahead.

DR. SMITH: Natural mortality, this one is pretty straightforward. The red line was the SEDAR 9, which was just assuming a constant 0.25. We switched to a Lorenzen natural mortality relationship and then, as has become sort of a custom for the Southeast assessments, we prorated the age-zero natural mortality by half, because we're assuming a mid-year birthday for these fish, and so the blue line is the natural mortality curve that was used in the SEDAR 45 assessment.

Moving on to landings, both of these images, the red line is the SEDAR 9 update data. The blue line, which is mostly masked by the red line, is the SEDAR 45 landings data. You can see that we added four data points in this update. By and large, we had good historical agreement with the landings data. There were a few changes, very, very subtle changes, to some of the historical data, but, by and large, the historical data matched

up, with a few additional data points.

In all cases, the data is suggesting basically a downward trend in landings from the commercial fishery, both in the east and the west.

For the recreational, the same thing. The red line is the update assessment and the blue line is the SEDAR 45 assessment, in the top left panel. The little lower bottom-right panel is the regional breakdown of landings, and so I will start with the top-left figure.

There's fairly good agreement. There are some differences in the historical stuff, the first five years. The old MRFSS used to include the headboat, which was then removed from it in the update. That data hadn't been removed for the SEDAR 45 assessment. It is now, and headboat is treated separately, and so you can see that the SEDAR 45 values come down.

Then, in the most recent part of the time series, you can see a couple of differences. That is an adjustment that's being made to all the recreational data to account for changes in survey design and the sampling program within the MRFSS and the MRIP, and so those differences in the historical landings, we believe, are accounted for.

Recreational landings seem to be increasing in the most recent part of the time series. If you look at the lower-right panel, the vast majority of the landings are coming out of the eastern Gulf of Mexico, primarily the western Florida area, with a much smaller component coming out of the west.

MR. GILL: Matt, do you recall the average weight of the recreational catch in vermilion, because you have this in numbers of fish, whereas commercial is in pounds, and so in order to compare the two.

DR. SMITH: I don't remember the average weight. I am not even sure that we looked at that, thinking back at it. The modeling framework allows you to input landings in different units. We don't have to standardize the units to input them, and then it uses, internally, the length/weight relationship to convert, if it needs to. We input these in numbers for the recreational fishery, and I don't believe we ever externally looked at the weight component of the recreational fishery.

Moving on to discards, on the left is the commercial discards and landings and on the right is the recreational. The green

and the purple line on the top part of the left commercial slide represent the landings for both the east in the green and the west in the purple.

The two lines at the bottom are the discards, with the blue being from the east and the red being from the west. From the data and assessment workshop, we came up with a range of basically 10 to 20 percent discard mortality rate. What you're seeing here is total discards, not dead discards, but this is total discards that are shown here.

When we took into account the relatively small magnitude of total discards multiplied by a fairly low discard mortality rate, we decided, at the data and assessment workshop, to not explicitly include discards in this assessment, as they were believed to be a very small component of the total kill for both the commercial and the recreational fishery.

The same thing with a different color scheme for the recreational. The red is the landings and the blue is the discards, and a similar discard mortality rate was assumed when we were doing this analysis.

For the purposes of SEDAR 45, discards were evaluated, and we opted not to include them explicitly in the model. Part of that was the fact that it was believed to be a relatively small magnitude of the kill. The other part was that we have made a number of very substantive changes to this already, in terms of the standard assessment, and so we certainly think the discards should be reevaluated the next go-around for vermilion snapper, but they were not included in SEDAR 45.

Shrimp bycatch was a real stickler for vermilion snapper. This is another issue that has caused a fairly major change in the model. On the figure, you've got two lines. The red line is the shrimp bycatch annual estimates that were included in the SEDAR 9 update assessment. The blue line is the shrimp bycatch annual estimates from the SEDAR 45 assessment, and so, as you can pretty clearly see, beginning in around 2003 or 2004, the two trends diverge substantially.

This raised a bunch of red flags within the assessment team and the data workshop team, and we did a lot of work -- Jeff mainly did a lot of work trying to figure out what the source of this difference was, and the main conclusions that we came to were a couple.

Jeff did a huge amount of runs of basically forensic exploratory

analysis on the data that would have been available at the time of the update, to try and figure out how they did their assessment to get the fit that they got, and the conclusion that he came up with, after I don't how many runs, but a lot, was that the observer data, for whatever reason, was not included in the bycatch calculations during the update assessment.

Just to make sure that the stuff we were doing for SEDAR 45 was accurate and it wasn't us that was making any sort of mistake or omission in the data, we took the data that we used in our Bayesian approach to get our bycatch estimates and sent it to a colleague who uses a different approach to do a similar type of analysis on the shrimp bycatch. He did the analysis and sent it back, and it basically confirmed the trend that we were seeing in the SEDAR 45 time series.

We're still not entirely happy with the result, because it suggests that bycatch has trickled off to almost nothing in the most recent part of the time series. There is still some bycatch there. Although it looks like it's at zero, there is still some, but it's just very small, and that is not reflected in the change in effort.

The effort has gone down quite a bit, but it hasn't necessarily gone down quite that much, and the shrimp bycatch has been an issue in a number of the fisheries. In gray trigger, it was an issue, and, again, it's an issue here. It's something that we're going to look at, hopefully, within the Southeast Center, to try and get a handle on what the best way to approach the bycatch is, because we're not fully satisfied with either of these results.

However, we believe, with the data and the methods and our understanding of the data that we have at present, that the blue line that we're going to use for the SEDAR 45 assessment is the best available estimate of the shrimp bycatch, and that's based on the analysis that Jeff did as well as the corroborating analysis that was done by a colleague in the Panama City Lab.

CHAIRMAN BARBIERI: A quick question here from Carrie.

DR. CARRIE SIMMONS: Thank you, Mr. Chairman. Thanks, Matt. Just a quick question on this. Did you guys have any information on the SEAMAP trawl that you could possibly look at and compare to see if you're seeing a similar trend with this type of downward decrease in catch? Did you have enough samples that could possibly look at that SEAMAP groundfish survey to see if you're seeing a similar trend?

DR. ISELY: The SEAMAP data are the primarily CPUE data that go into this. The drop is basically a drop in effort. With the imports of Vietnamese shrimp, as well as Hurricane Katrina wiping out the shrimp fleet, we see a huge decrease in effort starting in 2005, and it really hasn't recovered yet. The previous data incorporated SEAMAP, but it used a different effort set, and so it applied effort from a small area to the entire Gulf, and it was inappropriate at the time, and so that's why the big difference, but SEAMAP is the base dataset we use for all the CPUE data.

DR. CHRISTMAN: Just to reiterate what Jeff said, if you look at a document from yesterday, 6(b), I think it is, shrimp aggregate MSY, Figure 2.2, shows a huge drop in effort in the shrimp industry, and you're mimicking exactly that drop that was seen yesterday.

CHAIRMAN BARBIERI: Leann, do you have a question too or a comment?

MS. BOSARGE: Just a comment. Let me start by saying that I am not a scientist at all, but I do come from the shrimp fishery, and just another observation is that these -- You mentioned triggerfish and then we have this assessment here, and so I would think that the pink shrimp fishery is going to have the biggest impact, as far as bycatch, on both of those species, because it's predominantly a Florida fishery. Most of that effort takes place off of Florida.

The effort in the pink shrimp fishery has definitely tanked over that time period, relative to some of the effort in the brown and white shrimp, and so I think there's been a more dramatic decrease in that effort, and so that may be where you're seeing some of this as well.

DR. SMITH: Thank you. That's actually very helpful. We were looking at trying to break down components of this data in terms of CPUE and effort declines and, like I said, the magnitudes in I guess sort of the all-encompassing shrimp, which would combine all of those fleets, didn't appear to match what we're seeing here, but these are predominantly eastern Gulf species, and so it may be that the bycatch is coming from predominantly, like you suggested, one of the fleets which has suffered more than the other ones. We will take that back and certainly use that information when we're trying to dig into how to better handle shrimp bycatch.

MS. BOSARGE: It actually dropped off so dramatically that it caused the Center or somebody to start using a different model for pink shrimp. Well, for shrimp in general, but, because the model that you had couldn't handle that drastic decrease in the effort, we had to switch models for the stocks for shrimp, and so the pink shrimp has definitely had a big, big decrease.

CHAIRMAN BARBIERI: Thank you for that, Leann. Steven.

MR. ATRAN: This is going back to the previous slide and, actually, it's something that won't come up until later, when we get around to talking about OFLs and ABCs, if we get to that point. Ryan Rindone, who is all things SEDAR, sent us an email reminding us that the terms of reference for this SEDAR say to provide commercial and recreational landings and discards in numbers and weight, or pounds.

I think the stock assessment has done this. Matt said that they made an explicit decision not to include the discard mortality in the estimate, and so the National Standard Guidelines do require that we explicitly account for discard mortality in our ABCs. If these discards are not being included in the assessment itself, if we have those numbers, perhaps when we start talking about OFL and ABC, those should be deducted from whatever the OFL and the ABC would have been. Like I said, that won't come up until later, but, while it's still fresh in my mind, I wanted to get that out.

DR. SMITH: So you would be looking for an estimate of dead discards?

MR. ATRAN: Yes.

CHAIRMAN BARBIERI: I would rather wait, if you don't mind, and handle this discussion later, because I think there was an explicit decision from the analytical team not to include discards, given the small magnitude, and so I think we're going to have to evaluate it from that perspective as a decision from the team.

MR. ATRAN: Yes, and I'm not questioning the decision not to include the discards in the analysis, but just, because they need to be accounted for somewhere, when we get to the point of looking at OFLs and ABCs, maybe deduct them from the OFLs and the ABCs for the directed harvest.

CHAIRMAN BARBIERI: Steven, I just don't know how we could do that, deduct, if they are not explicitly accounted for in the

actual assessment model.

MR. ATRAN: We'll have the numbers. Let's say it's 50,000 pounds of dead discards and we get X million pounds for an ABC. We could just deduct 50,000 pounds from that ABC.

CHAIRMAN BARBIERI: But what year and what's the recruitment stream, input stream, that causes that level of discards and what are the changes in selectivity that lead to differences in discards?

Having an absolute number of discards, it's not feasible to, as far as I am understanding how -- The magnitude of discards is going to be tied, very closely, to recruitment inputs and variability in that and changes in selectivity functions and all sorts of things. I just cannot see how that could be handled analytically. Yes, Jeff.

DR. ISELY: I think basically what we're saying in the assessment is that the discards were not significantly different from zero, and so, in essence, they're accounted for in the model as being zero.

CHAIRMAN BARBIERI: That's my point exactly by the previous comment, that I mean I think the SSC needs to look at this, on whether the role of discards is so negligible in this that -- It's not that it was improperly accounted, considering NS 1 Guidelines, which are non-analytical in nature. It's this committee's role to actually make the call on whether the discards represent a significant type of removals or not. In this case, the analytical team made a decision not to consider them relevant, in terms of the magnitude of removals.

MR. ATRAN: Maybe we ought to pick up this discussion when we get to the point of declaring OFLs and ABCs, because we're getting off track here, but I just wanted to see if we could have those numbers available at the time.

DR. SMITH: I believe so. I did the best I could to put everything I could get onto a portable hard drive, as well as being able to VPN back into the network, and so I should be able to get that. It's all within the assessment documentation. Every piece of data we got is in there, and so I don't know if I have them queued up in my back pocket, in my back pocket slides, but, if I don't, I can more likely find them. If not during the lunch break, certainly by the end of today. If I can get them, I will be able to get them by the end of the day.

CHAIRMAN BARBIERI: Go ahead, Matt.

DR. SMITH: The ramifications of the change in the shrimp bycatch, the annual estimates -- Like I said, we do not directly use the annual estimates. Rather, we use a super-year approach. If you can see them on the slide there, they are two horizontal lines going along the bottom. The red one was the previous median value for the super-year and the blue one is the new value. Those correspond to values of 8.87 million fish in the past and 4.49 million fish at present, which are quite a bit different from each other.

As was done in the SEDAR 9 and SEDAR 9 update, the bycatch was reduced to 75 percent of the total. This was done because a modal analysis of length frequency data in the bycatch suggested that it was predominantly one-year-olds, and so about 75 percent one-plus-year-old fish and about 25 percent zero-age fish, and the model that we were using is an age-one-plus model.

The mortality on the age-zeroes, or the removals on the age-zeroes, would not be explicitly incorporated into the model, and so we reduced the estimated total removal, in this case the 4.49 million fish, by 25 percent to accurately remove the age-one-plus fish from the model.

That resulted in the current super-year of 3.3675 million fish, as opposed to the 6.65 million that was used during the update, and so that is a fairly substantial difference, in terms of shrimp bycatch removals. We did a lot of sensitivity runs around this, and the predominant result of that change is to shift where R0 is, and so basically virgin recruitment and virgin biomass. Having a larger shrimp removal resulted in that value being higher than it is estimated at when you have lower removals.

In terms of stock status, at the end of the day, having a higher shrimp bycatch removal results in a more pessimistic stock status, because we're basically saying that in the past we started higher and we're roughly about the same place now, and so, when you compare where you are now to a higher in the past, it suggests that your SPR is lower than it would be with the smaller removals from the shrimp fishery.

We will see that stuff in more specifics, I believe, as we get into the models and the model results, but, just to give you an idea of what's coming down the pipe in terms of the ramifications of this change in removals from the shrimp fishery.

Age compositions, and so we're starting with commercial. The top figure is the east and the bottom figure is the west. A table of just the age data that we have from the vertical line commercial fishery in both the east and west is on the right-hand side. Sample sizes for the commercial age composition are pretty good for the vast majority of the time series that we have, especially from about 2003 onward, in both the east and the west.

There is not a lot of very strong year classes, but, to my eye, I picked out a couple here that suggest that you can pick up some year classes, some strong year classes, within the age composition data, as well as to suggest that, when those year classes come through, they're showing up in both the east and the west, at least in the commercial. As we'll see, the same ones show up in the recreational as well.

When there appears to be a recruitment event in the vermilion snapper fishery, it is Gulf-wide and it shows up in all of the fisheries that we have data for.

Like I said, here is the recreational. Those lines are the same as the ones that were shown in the commercial, and, again, they're not dramatically big year classes, but I think, from my eyes, from staring at it, that I can see some year classes coming through, and they mimic what we saw in the commercial, and so we have some confidence in the age composition data.

As we saw in the previous slide, commercial was broken down east and west for this assessment. The recreational data was handled Gulf-wide. Part of the reason for this is that, if you can see in the table, the western age composition data is almost non-existent up until about 2007, where we start to get decent age composition data from the western Gulf of Mexico.

At this point, we weren't confident in our ability to get selectivity estimates for the western Gulf. However, we're fairly confident, by the time this rolls around to the next benchmark or update, that, if this group wants to, we will have the data that we need to basically go to a full spatially-structured model with some sort of east and west divide, and determining where that divide is will be an issue for debate.

It appears -- I don't believe there's any evidence suggesting that there is genetic distinctions between the east and western stock, and, as we see in the recruitment events, they appear to be Gulf-wide, suggesting some mixing going on there as well, and

so it may be more of a fishery-based split, if and when we get to that, to separately model the two fisheries, which do operate differently, at least in the commercial sector, they operate slightly differently, to get better estimation of local abundance.

That's down the pipe. We didn't do a spatially-structured model for this. We considered it, going in, but were deterred by this absence of good data for the western age composition. Like I said, in the future, we will hopefully have what we need to go ahead with that.

This is the shrimp effort. As we alluded to, there are major declines in the shrimp effort, beginning in around 2003 or 2004 or 2005, possibly. It drops off dramatically and then stabilizes. This would represent, sort of as we talked about earlier, a composite of all the shrimp fleets. This is not a fleet-specific plot, by any means, and so the individual shrimp fishery fleets may have experienced different drops in effort. They most likely did.

What the multiple lines on here represent is an attempt to reweight the shrimp effort to more accurately reflect the effort that was in the areas where the vermilion snapper were to be found, and so to try and weight this towards the eastern portion of the Gulf. We used the SEAMAP groundfish survey catch rates to do that, and the result of that analysis was practically no change in the data.

In terms of the values used for the assessment, we used the SEDAR 45 reweighted values, which are the blue, the shrimp effort values, but they didn't differ dramatically from the raw, unweighted values, which are shown in the green.

Another fairly substantial change, and something that we spent some time on at the data and assessment workshop, was the commercial indices of abundance, and the reason for this was the fact that we believed, as a panel, that the introduction of the red snapper IFQ in 2007 had the potential to be very influential on the vermilion snapper commercial logbook data.

The thought behind that was that people who, depending on the amount of IFQ you had for red snapper, they could basically use vermilion snapper as a substitute species, and the amount outstanding IFQ could influence fishermen behavior, and so multiple approaches were taken.

We fit a truncated commercial index, we fit an index to the full

time series, and then we fit a split index, where we basically created two indexes instead of one, one that stopped in 2006 and then another one that started in 2007.

On the graphs that you're looking at, on the left-hand side is the eastern Gulf and the right-hand side is the western Gulf. The full time series is showing in green. The old SEDAR 9 update is shown in red, and the split series is shown with the blue and the purple, with the blue being the pre-IFQ and purple being the post-IFQ.

A common comment that comes when looking at these, specifically if we focus on the east, is this difference, this disconnect, between the pre-IFQ and the post-IFQ, and that is of no consequence. It appears at though something went dramatically wrong there, but it does not matter in terms of the model.

Both of these that you're looking at are basically standardized around one and, to capture this increasing trend, this index is shifted down, but these are fit separately. They do not influence each other inside of the model, and they basically act completely separately. The increasing trend here is what it's important and not necessarily the magnitude, in terms of it starting right at the end of this one and going up.

For the continuity model, the decision from the data and assessment group was to use a truncated, to just cut the index at 2007 and not include the IFQ, because it wasn't considered in the update assessment. For the base model, we used the split index with the pre and post-IFQ commercial index. Any questions about this, because it is quite a bit of a change. I don't know if it's been done before or shown before. Okay.

For the recreational indices of abundance, we fit a MRFSS/MRIP index, which is the top panel, and then we fit a headboat east and a headboat west index, which are the bottom two panels, east being in the middle and west being at the bottom.

The SEDAR 9 update values are shown in red, and the 45 values that were used are shown in blue. It's fairly good historic agreement between them, despite the fact that the factors included in the model were allowed to change between the two updates, and so the factors are not necessarily the same that were used in the standardizing procedures. Despite that, the trends in the two are fairly similar.

By and large, they're showing relatively flat trends, with possibly a slight uptick, especially in the MRFSS index, the

MRFSS/MRIP index, and it's flat, with maybe a slight uptick, in some of headboat indices for the recreational fishery.

Fishery-independent indices, this is sort of a shotgun blast of all three of the indices. We had the larval, the SEAMAP groundfish, which was restricted to the eastern Gulf of Mexico, and the SEAMAP video survey. All three of these indices were incorporated into the model. The larval index was used as an index of spawning abundance, and the video and the groundfish were used as indices of relative abundance.

They're sort of patchwork as the programs build up. They had lots of what they refer to as data holidays in here, where they basically ran out of money or had a boat break down or any number of issues that can restrict your sampling. They're getting a little bit more consistent going into the later part of the time series, which is why we're considering these and we're adopting them now, is that the time series are getting a little bit more consistent. As I said, they're all included in this model.

This is sort of a recap on life history, because there was a lot there. The major updates were that we shifted the way that we model the growth, we updated the fecundity and maturity, we switched the natural mortality relationship from a constant to a Lorenzen, we adopted the split index for the commercial IFQ, to include the CPUE analysis. Shrimp bycatch was updated and changed quite a bit. We have reweighted the shrimp effort for the SEAMAP groundfish, or we're using the SEAMAP groundfish data, and added all of those fishery-independent data, and so these are major changes in the data from the previous assessment.

Moving on to -- We will go through the continuity model first, very briefly, and then get into the base model, but it's just sort of an overview of the framework that we used to assess it.

The assessment was done for both of these with the SS3 statistical catch-at-age model. It was a single area model, in that we didn't have any explicit spatial structure in there. Data years were 1950 to 2014. We didn't have data for most of the sources that went all the way back to 1950. Where we built up the historic data, we used a vertical ramp until we met up to the spot where we had data for each of the individual data sources.

Four fleets were considered, a commercial east and west fleet, a recreational combined fleet, and the shrimp bycatch. We used a

bias-adjusted Beverton-Holt stock-recruitment function that estimated deviations from the most data-rich portion of the time series, which was 1994 to 2012, and we used age-zero age-fourteen-plus, although the age-zero is just back-calculated within SS. We input data for age-one to fourteen and then SS uses natural mortality rate to basically back-calculate what the age-zero recruitment would have been.

Like I said, life history parameters, a lot of them were updated and they were externally scaled to account for an assumed January 1 birthdate, which is inside the model, that is assuming a January 1 birthdate. True birthdate is believed to be, roughly, midyear. These animals spawn a lot throughout the course of the spring and summer and into the early fall, and so we just roughly averaged it out to a midyear birthday, and so the life history was adjusted to account for that disconnect between actual birthdate and the assumption of a January 1 birthdate in the model.

The commercial fisheries were fit with separate selectivities. The recreational fisheries share a common selectivity function, and we updated all the data through 2014. Like I said, landings were linearly interpolated back to the start year, to account for absences in the historical time series of data.

Super-year approach was used to fit the shrimp bycatch. The Gulf-wide shrimp effort index was used to determine the trend in the bycatch fishing mortality rate. Shrimp selectivity was fixed. We estimated all the other selectivities, but shrimp selectivity was fixed, because we didn’t have the length data available to us, and that was 100 percent vulnerable at age-one, 30 percent at age-two, 3 percent at age-three, and then zero for the larger fish.

All of the landings, CPUE, surveys, and bycatch assumed a lognormal error structure. Shrimp effort was assumed to have a normal error structure. Age compositions followed a multinomial distribution, and stock-recruitment variations assumed a lognormal error structure.

CHAIRMAN BARBIERI: Matt, before you continue, if we go back a couple of slides, can you give us a little more detail about the common selectivity functions for all three CPUE indices, I mean just a little -- If you can help us fill in some of eth discussion points. I wouldn’t expect those to have the same selectivity functions.

DR. SMITH: They have common selectivities, and so, part of that

decision to have a common selectivity for those was logistical, in that, if we think back to the age composition data that we had for the recreational fishery, which I can maybe go back.

The numbers you're seeing here are combined numbers across all fleets. This is the samples that we have from the private, charter, and headboat fleets. If we were to subset these out into those individual component fleets, the sample sizes were not large enough to estimate, with any confidence, separate selectivities for those fleets, and that was a large driving factor for the decision to combine them, as well as the fact that they had been combined as a single fleet historically, but primarily the decision came down to the fact that we were not able to estimate, with any confidence, individual selectivity curves for those fleets, and so, in the absence of being able to estimate them, rather than guess, we just combined them into a single fleet.

CHAIRMAN BARBIERI: Okay. Thank you.

DR. SMITH: As part of the TORs, we were asked to produce a continuity model, and I'm not going to spend much time on that, other than just to run through it real quick. For the purposes of the continuity model, we continued to assume the constant M, which was the previous assumption. We kept the stock-recruitment relationship assumptions in place that were in place during the update, which was to estimate the steepness with a prior on it.

Estimate R0 without a prior and then the sigma_R was fixed at that time at 0.2, which is a fairly low sigma_R, but it was fixed at that, and so we kept it in place for the continuity model. Like I said, we truncated the commercial index, rather than introduce the IFQ, which was a new change. We estimated selectivities, which was what was done in the past. All of them were logistic in the past. We introduced some dome-shaped selectivities into the base model, but, for the continuity, we kept everything logistic except for the shrimp, which was fixed.

The CVs on the catches and the indexes, as well as the neffectives for the age and length comps -- There weren't any length comps. Excuse, but the continuity for the age compositions and the continuity were fixed at the values that were used in the 2011 update.

Then it's also important to note that the SS run -- At least I think we see some SS run output that in 2011 had the shrimp bycatch fixed at the median value, rather than using the super-

year approach. The SSASPM model, which was accepted for management advice back then, used the super-year approach. It's nuanced, unfortunately, but it is important that there was a difference in those two doing the continuity model.

The results of that exercise, the blue line is the line that came out of the 2011 update assessment. The green line is the continuity model from the SEDAR 45 assessment with the truncated commercial IFQ, the commercial indices of abundance. Also shown here is the continuity model with the split series, which we just did as an exploratory run and is on this slide, but was not officially used for a continuity model, and then the red line on here is the base model, which we'll get to in a little bit.

The big take-away is, by and large, the trend from the update was maintained, in that abundance appears to drop off rapidly through this portion of the time series and then stabilize, with a slight uptick. However, there are significant differences between the 2011 model and the updated continuity model, the SEDAR 45 continuity model.

A large portion of this is attributed to the changes we made in the life history, and so the new continuity model has the new growth relationship, it has the new fecundity relationship, it has the old natural mortality relationship of growth and fecundity and they have been updated.

We stepped through a series of these, where we incrementally made the changes, and the smoothing off of these peaks comes from the changes in fecundity, where, instead of having an age-one fish be basically as fecund as an age-fourteen-plus fish, which means that as soon as that year class comes in, the model is saying you're going to have these big spikes in recruitment, because you've got all these new spawners, but it smooths off those, because those fish have to grow, and some of them die before they become major contributors to the spawning stock, and then changes in growth played a large part in the shifts in the most recent part of the time series in stock status. That is the continuity model.

Moving on to the new base model, for the base model, just to recap, we use a Lorenzen M, again. All the stock-recruitment parameters were allowed to be freely estimated, and so we didn't fix the sigma_R, as was done in the previous assessment. We allowed them all to be freely estimated in the model.

We used the split CPUE index. We allowed the recreational fishery to have a domed selectivity. We included all of the

fishery-independent indices and had a dome-shaped selectivity on the length data for the SEAMAP groundfish and a dome-shaped selectivity on the SEAMAP video survey. As I said, the SEAMAP larval survey was considered a straight index of SSB, and it doesn't have any selectivity incorporated with it.

For the commercial, which maintained a logistic selectivity in the base model, we did sensitivity runs trying to introduce dome-shaped selectivities into the commercial fishery, and they did not fit as well as the logistic, and so the logistic were kept for the commercial sensitivity runs and the recreational suggested the dome-shaped selectivity was more appropriate there, and that's what we went with for the base model.

DR. CHRISTMAN: You had two selectivities, one for west and one for east, for commercial before, correct?

DR. SMITH: Correct.

DR. CHRISTMAN: So do we have four now, four selectivity functions?

DR. SMITH: We have still two for the commercial, and so the selectivity for the pre and the post-IFQ is the same for the commercial. There are still two there. There is not a selectivity for the pre-IFQ and a selectivity for the post-IFQ. As the time series builds, we may get there, but, for now, we're keeping it as a common selectivity for those two parts of that index.

A little bit more of the nitty-gritty, some real heavy stuff here. For the landings, the CVs, the data weightings -- Basically, the CVs and the errors that you input into SS, in terms of landings and data inputs, are used to scale the relative weight and contribution of those data sources to how the model fits the data. The tighter the CV, or the standard error, is for a data source, the more weight that it gets when the model is trying to make sense of all the different data inputs, and so these are important in terms of assigning trust and belief to a certain data source that you want to be the most important contributor to your model, and so that is sort of laying the groundwork.

The recreational CV was estimated from the recreational data, and it came out to roughly 0.15, and so we used the value for the recreational. In previous assessments, and as sort of a general rule -- Not a rule, but a general guideline at the Center, we have more faith in the data from the commercial

fishery, from the logbook fishery, because it is fairly well regulated, and it's supposed to be a census, but it's not necessarily a census, but it's close.

We have more faith in that, and the general guideline is to use a three-to-one relationship between those two. Because we had an estimate for recreational at 0.15, we used an estimate of 0.05 for the commercial, and so it's going to give the commercial more weight than the recreational landings data.

For the CPUE indices, we had annual estimates of variation for those that we wanted to maintain, but we wanted to have all the indexes have basically equal weight, rather than one where we have tons and tons of data, just due to the fact that we have lots of samples, or lots of years, to drive the index component. We wanted them all to have equal weight.

To accomplish that, we standardized them, so that the mean value of the annual CVs of those indices for all of them was going to be 0.2, but the interannual variation was going to be maintained, so that, on average, every index would have a CV of 0.2, so on par contributing with the recreational, but not as substantial as the recreational fishery, in terms of its weight in the model, but maintain the interannual variability.

Shrimp bycatch error was fit at 0.1, which is sort of a carryover from the previous models, and the length and age compositions in the past had their neffectives capped at twenty-five. We upped that cap to a hundred and then iteratively reweighted these, in order to get the most appropriate, according to the Stock Synthesis model, neffectives for our length and age compositions.

Any one that came up over a hundred that was going to get lots of lots of weight, we capped it at a hundred, to keep one or two strong years from driving the entire fit to the age and length composition.

CHAIRMAN BARBIERI: Matt, a quick question. Your effective sample size is in number of fish, I imagine, instead of number of trips?

DR. SMITH: Yes. That's sort of a hybrid, I guess. It's not truly raw fish. Once you get to the neffectives, the raw numbers that we had that we fed in would have been raw fish counts. Once we go through the process of kind of iteratively reweighting these, the numbers diverge quite a bit from that, to reflect some of the cluster sampling aspect that goes into the

age and length composition data acquisition. That wasn't explicitly handled, in terms of a statistical model to estimate what the sample size would be from a cluster sample, but it was handled internally in the model, through the process of doing multiple iterations, until it sort of converged on the effective Ns that produced the best fit to the age and length composition, if that makes any sense at all.

CHAIRMAN BARBIERI: Yes, it does. Thanks.

DR. SMITH: Total for the model, we had 309 estimated parameters. The vast majority of those were fishing mortality rates for the three fleets, which was 260. Logistic selectivities for the commercial fishery were eight, eighteen parameters for the dome-shaped selectivities, one catchability coefficient for the shrimp fishery, three stock-recruitment parameters, and then nineteen stock-recruit deviations for the data-rich time period.

SSC MEMBER: The stock-recruitment parameters, what was the sigma_R? Did you use that?

DR. SMITH: We allowed that to be freely estimated.

SSC MEMBER: Okay. What was it, do you remember?

DR. SMITH: It came out actually pretty close to 0.2. I think we get to that. I believe it's up here somewhere. It came out fairly tight, and the stock recruitment relationship that was estimated from the model, again, comes into play in projections, because we, through conversations internally and with Rick Methot how best to handle stock recruitment in terms of these models, the suggestion was to allow the parameters to all be freely estimated, so that the model could do its best to fit the signal in the age and length data to get the most accurate modeling of the recruitment events.

Then, in terms of projections, if we don't believe the values that we were getting out of the model reflect the true biology of vermilion snapper, to take a different approach in projections and just use an assumed short-term constant recruitment assumption, which is the direction we ended up going with vermilion snapper, but, for the purposes of getting the best model fit, the advice from Rick was to allow these all to be freely estimated, and I believe the sigma_R ended up being low. I'm pretty sure we get into that in the results and the diagnostics.

The first thing we'll look at for the base model is fits to the data. On the left is the commercial data. The observed values are shown just with the dots. The model fit is shown with the line. As you would expect, because the CV was so tight on the commercial data, the fit to both the commercial east and west data in the model is very good. It does an excellent job of capturing the annual variability in commercial landings.

The recreational, which was not fit as tightly, still does a pretty good job of capturing general trends. It misses some of the specific points by a little bit more than the commercial, but, again, that is a result of the differences that we imposed there on the CVs for those two data sources.

The shrimp bycatch, on the left is the bycatch estimates itself. It dashed-blue line is the median of that super-year, which was used to kind of set the median value for the shrimp Fs, the shrimp fishing mortalities. The effort data on the right was used to drive or to inform the shrimp Fs that come out of the bycatch, and it fit the effort fairly well. There was a little bit of a disconnect in this period here, but it fully captures the decline in effort in the most recent part of the time series.

On to the indices. We're going to start looking first at the commercial index of abundance for the pre-IFQ period. On the left is the east and on the right is the west. These fit okay, and a lot of what we're going to see with the indices, we will have to keep in mind that, despite the fact that we have two fleets here with two separate selectivities, this is still a single area model, and so we're assuming one population, and so there is not allowed to be differences in abundance in the east and the west.

The only thing that SS can do to try and fit these differently is to use the selectivity data, and so when you see, here in the east, this index kind of trending up a little bit and, here in the west, this index trending down, the model is forced to, due to the fact that we haven't been able to fully spatially structure this, split the difference.

The individual fits here for the east and the west don't look that great, but, if you consider it in a sort of combined -- Do the mental exercise of trying to combine those two, it does the best it can to split the difference between the east and the west. Anyway, in all of these slides, the red dots are going to be the observed value that was input. The blue lines are going to be the model fit to those values.

CHAIRMAN BARBIERI: Matt, catchability changes or your estimation of catchability there -- I mean every time that I see a change like this, where you have the first half of that distribution there on the east under fitting and then over fitting thereafter, to me, it suggests some potential change in catchability there that couldn't be accounted for. Did you guys discuss that at all?

DR. SMITH: Not specifically. One thing that does come up is the selectivities for these in the west are quite a bit different. We didn't explicitly look at catchability, and there is a possibility for local differences in population abundance that could attribute to these differences between the two indices, but, without spatially structuring this so those two, east and west, or however they provide populations, can change independently, we can't capture that in here.

Selectivity was not explicitly estimated in the model for -- We didn't specify a parameter for it. We only estimated a catchability for the shrimp bycatch fleet, and so it was not -- To my knowledge, catchability, we didn't discuss it as a potential source of this error, and it wasn't explicitly handled.

If we get to a point where we can spatially structure this, as well as other stocks -- I know a lot of the ones that I've seen, this issue with the indices is a reoccurring problem, and a big part of it is that we are creating sort of spatially-structured indices for a population that is not being spatially-structured, and so you can get these differing signals that can tell you different stories, but can't be accounted for, because there is no flexibility in the population.

CHAIRMAN BARBIERI: Okay. Thank you.

DR. SMITH: That issue will be a reoccurring trend in a lot of these. This is the post-IFQ, starting in 2007 and going up to 2014. Like we saw earlier, the east suggested an increase and the west suggested a flat, or possibly slightly-declining, index. Again, the model's best attempt to split the difference comes up with basically a flat index from the commercial CPUE after the IFQ is introduced.

CPUEs, indices of relative abundance, for the recreational fishery, we have the MRFSS/MRIP east index on the top and headboat east on the bottom left and headboat west on the bottom right. All of these are fit to the same selectivity. Unlike

with the commercial, where we had different selectivities, these all have the same common selectivity and the common population, and so they're on different scales here.

If they were scaled the same, what you would notice is that this blue line is identical for all three of these, and so, again, the model is restricted in its ability to fit these separate pieces of data. It has to try and fit a common indices of abundance, a common trend, to all three pieces of information, and so the individual fits are not always going to be great, but, by and large, it still captures the general trend in the observed data.

The fishery-independent surveys, for the most part, suggested flat or slightly increasing, in the most recent part of the time series, indices, with the larval being the longest time series. These are on different X-axes, if you can see them. The video begins in 1995, the groundfish begins in 2009, and the larval begins in 1985, and so, for the area where they have similar overlap, they are all basically suggesting the same trend. Larval just goes back in time a little bit more, and it has the same general trend that we saw in the recreational and the commercial.

Fits to age composition, we opted to go with just sort of the composite fit to the age composition. If anyone is interested in seeing the annual breakdown of these, we can look at them later. Composite fit to the age composition was fairly good. We had some slight differences in the east and the west, where the model was suggesting there should be a few more age-three, four and five fish than we observed, but, by and large, the fit to the age comps was pretty good.

When we look at residuals for those, we see fairly good residuals, without much pattern. Except for very recent in the commercial fisheries, we have a fairly strong residual pattern coming out of the last three years of data, where we have a positive residual, suggesting that the model is predicting that there should be more older fish than we're observing. We don't have an explanation specifically for this at present, but it's an issue that can be looked at in a future assessment.

The recreational, the residual pattern, when we had a logistic selectivity on that, was fairly strong. When we introduced the dome-shaped selectivity, we wind up with the residual pattern that we see here, which is a fairly good. It's not suggesting any real pattern or misfit with the recreational fishery.

We had length composition data for the fishery-independent surveys. The composite fit to the length comp is shown on the left. Both of those were fit fairly well, and the residuals for them are on the right. There is no obvious pattern suggesting misfit for the survey length composition data. Now on to summary results.

CHAIRMAN BARBIERI: Matt, let me -- Since we've been at this for an hour-and-a-half already, let me ask the committee -- Do you guys want to take a quick ten-minute break? Yes. Let's take a ten-minute break, Matt, if you don't mind.

(Whereupon, a brief recess was taken.)

CHAIRMAN BARBIERI: All right, folks. This was a very liberal ten-minute break, and so if I may ask you to return to your seats. I am hoping that Matt is around somewhere. There we go.

DR. SMITH: Okay. Moving on to some of the results from the base model fit, on the left-hand figure is the harvest rate, which is the total number killed divided by the exploitable number of the age-one-plus fish in the population.

As you can see, harvest rate, throughout the historic time series, increases up until about -- It's estimated to increase up until about 1995 or 1996, reaching a peak of around 20 percent removal for a given year, and then it begins to decline rapidly thereafter.

That decline in total removal for the harvest rate also coincides with the decline in the shrimp fishery effort, and, on the right-hand side is the continuous Fs for the different fleets that were estimated in the model. We can see that the component of fishing mortality from the shrimp bycatch fleet was the predominant source of removals historically and has declined substantially. That coincides with that decline in effort from the shrimp fishery.

The commercial east is in blue and the commercial west is in green and the recreational fleet is in yellow on that slide. They've had fairly stable fishing mortality rates, with potentially some slight increases in the recreational in the most recent part of the time series, and declines in the commercial in the most recent part of the time series.

MR. ATRAN: Are these apical Fs?

DR. SMITH: No.

MR. ATRAN: They're averaged across all age groups?

DR. SMITH: They should incorporate the selectivities. Estimated selectivities for the different fleets -- As I said, we fit logistic selectivity for the commercial east and west, which are the top-left and the top-center panel. It's hard to see the difference there. I guess you can see it, but there is a difference, with the commercial west typically catching one to two-year older fish than the commercial east.

The recreational fishery had a pretty strong dome estimated to it, with the predominant age group being captured was age-four, five, and six, and then declining as they got older. The shrimp fishery was fixed. We're in the lower-left panel. It was fixed and not estimated in the model, and so it is what it is.

The video and the groundfish selectivities were length-based. The other four that we looked at were age-based. Those were estimated inside the model, and they have the domed patterns that we see there. Are there any issues with the selectivities or questions?

CHAIRMAN BARBIERI: John.

MR. MARESKA: Thank you, Mr. Chairman. Some of these selectivities and the previous slide, if you can go back to it, that was all age-based, and so an age-one fish, again, there's so much variability in the size of an age-one, and so how was that addressed, the fact that some of those age-ones may be -- If you go back a slide. No, not that one.

DR. SMITH: The length/age relationship slide?

MR. MARESKA: Not the length/age relationship slide. I guess that's the -- Here we go. That's it right there. Your harvest rate of number killed were age-one, and so age-one, some of those fish -- If we look at the size-at-age, a lot of those were legal-sized fish that were age-one, right? These are harvest and not discards. Okay. My bad.

DR. SMITH: Right. This is not age-one explicitly, but this is overall harvest rate for the population, which, inside the model framework, was age-one through fourteen-plus, and so this is total number killed across all ages divided by the exploitable number of those ages, and so all age-one-plus here.

MR. MARESKA: That cleared it up. Thank you.

DR. SMITH: Moving on to recruitment, in the top-left panel, there are the estimated log recruitment deviations. We see fairly strong correlation, as least historically, in the recruitment events for vermilion snapper, where we have periods of below-average recruitment followed by periods of above-average recruitment.

We appear to currently be in a period of above-average recruitment, at least for the last three data years. Whether or not that's true now or into the future, no one knows, but, for the most recent part of the data in the model, there was an above-average recruitment estimated.

On the top right panel is the stock recruit data that was used to fit and estimate the stock recruitment parameters. All of the tail off to the right is just sort of burn-in. The actual data is this shotgun blast here in the middle, which makes you wonder how it estimated any parameters to fit that data, but it did, and this comes back to play. We will look at some diagnostics from this in a little bit, and it also comes into play in projections, in terms of the fact that the estimated parameters we got from this relationship we did not have a lot of faith in, in terms of using them to project stock status.

Then, in the lower-right is the composite, with the estimated spawning stock biomass and the recruitment events overlaid on top of it, and so, again, we have somewhat dramatic swings in recruitment without necessarily corresponding swings in spawning stock biomass, leaving us to this kind of shotgun pattern when we put them on the stock-recruitment relationship.

Stock status from the base model, vermilion snapper, at least using the age-structured models that we're using now, has historically been in fairly good shape, having never been technically overfished throughout the course of the time series.

We start out with historical data kind of burning in and get into the actual data. The data-rich period, where we have good age compositions, begins in 1994. At that point, the stock was considered to be experiencing overfishing, but not yet overfished.

It continued to decline in abundance and then reached this area where the start of this orange is the SPR 30 biomass and then the MSST, which is sort of the management threshold, where we get into the area where we're not quite below biomass at MSST, but below biomass at the SPR 30 reference point. The stock

stays there for a good part of the time series, and then, in the most recent part of the time series, 2014, it ticks back up into having a biomass above the SPR 30 biomass reference point.

By and large, the vermilion stock is apparently experiencing expert management and is right near the reference points that are laid out for it, and so everybody pat yourselves on the back.

Now we'll move on to diagnostics, so we can determine whether or not these results are credible. The first one we're going to look at is the stock recruitment parameters, because they're a significant source of uncertainty and potential problems.

I will start with the figure in the top right. This is a likelihood profile plot for R0. This is the parameter we believe is best estimated in the model. If you're not used to looking at these, what you want to see is this nice kind of U or V-shaped profile, which is indicating fairly strong agreement amongst all the sources of the data that the value of your parameter is at the bottom of that V or U.

For R0, we believe that was fairly well estimated. Steepness and variance, the estimated value of steepness from the model was 0.57, and the sigma_R was 0.23. For species like vermilion snapper, at face value, we didn't necessarily give a lot of credibility to a steepness of 0.57, and, again, as before, in the update assessment, the 2011 update, the sigma_R was 0.2. This variance was estimated to be quite tight as well, and this is a fairly tight variance for a stock-recruitment relationship.

The important thing to consider with steepness and variance is that those two parameters are highly correlated, and we did an analysis of the data where we fit a whole series of sigma_R and steepness values to create this contour plot, and what you're looking at, in terms of the color gradient, is the likelihood of the model for a given combination of sigma_R and steepness.

You see this broad swath of kind of dark blue, and that is the lowest likelihood, where the model, the final model, was down here, in terms of sigma_R of 0.23 and a steepness of like 0.5, but a wide range of parameter values, ranging up to a steepness of 0.8 or 0.85, and sigma_R values of 0.5 to 0.6, are almost equally as likely, given the data that we had available for this species.

As I said before, from the discussions with Rick Methot and internally, it was considered that allowing them all to be

estimated simultaneously would give us the best possible recruitment estimates for the model, but that we don't have a really strong evidence one way or the other to suggest that these are the true values, or the best values, for vermilion snapper.

When it comes to the projections, we opted to, rather than use the stock recruitment relationship and conduct the true MSY-type projections, to forego using them to assume a constant scenario and to use proxies of MSY for reference points and stock status. Any questions about this before we move on?

We also did a number of kind of standard diagnostics for the model. The first one we're going to look at is retrospective analysis. There was no real pathological trends in the retrospectives, and so, here, we're going through the different peels. Zero is the dark blue, the light blue is the one-year peel, the green is the two-year, yellow is three-year, orange is four-year, and red is the five-year peel. There's no really strong retrospective pattern from doing that.

We do start to get some divergence in the four and five-year peels, and we attribute that, in large part, to a lot of the indices that we had, the post-commercial IFQ as well as some of the fishery-independent indices. Once you peel back that far, you're running into situations where you have only one or two years of data in those indices left, and the selectivities, as well as some of the parameters for them, become much more difficult to estimate, and so we were very pleased with the retrospective patterns from the model.

Jitter analysis, we used a jitter value of 0.2, which is a little bit more. Typically, jitter values of 0.1 are applied. We ramped it up to 0.2, just to see if we could get it to break. The base model likelihood was 327. This is the total components of the jitter and then the total likelihood. The important take-away is that, while there are some cases where the model diverges, the vast majority of them wind up at the 327 value of the base model that we're using, suggesting that this base model is not at a local minimum and that it, in fact, found as best of a global minimum as we can get, regardless of the starting values for the parameters.

There were a few cases, here in the length comp, and we also see it in the age comp, where there were individual runs that resulted in very poor or very different convergence, and, again, we attribute those to some of the survey parameters, in terms of the selectivity parameters for the surveys have highly

correlated parameters in them, and not a lot of data to support them.

While, in most cases, they are estimated fairly well, you can find yourself in situations where, depending on your starting values, you get very poor estimation of those selectivity parameters, but, summarized, by and large, jitter analysis suggests that the base model is in fact the best fit for for the data that's available.

Index jack-knifing, here, what we're doing is we're removing an index one at a time and refitting the model to see whether or not any of our indices of abundance have an overwhelmingly strong contribution to the results. The general result of that analysis was that, no, there is no singular index that is driving this, and that's due, largely -- Not largely, but potentially due, in part, to the fact that we did that standardizing of the CV process for these indices, where we standardized them all to a CV of 0.2, kind of putting them on the same scale.

Then, of the couple that did seem to have an effect, the larval and the commercial east prior to the IFQ, are these two lines that kind of stand out a little bit up to the top here. They suggested a somewhat lower SSB0 and R0, but not substantially, and so general agreement through the index jack-knifing procedure.

The continuity model comparison to the base model, we saw a figure similar to this before, but, just to recap, the base model here is shown in red. The two continuity models are the yellow and the green, with the truncated and the split series index. They're all basically telling the same story. The base model suggests a slightly more optimistic stock status in the time series, but general agreement between the continuity models and the new base models.

Then just a few other sensitivity runs. I touched on some of this earlier, but, in the plot on the left, the red line is basically taking the base model, the new base model, and using the old shrimp data, and, as I alluded to earlier, these are all on the same scale. They're standardized, but the effect of using that old shrimp was to increase the SSB0 and the R0 here. This age-zero recruits, and so R0 you can see, historically, with the old shrimp, was estimated to be quite a big higher than with the new shrimp.

The general trends are still captured if you use the old shrimp,

but the stock status comes down quite a bit, because you wind up, more or less, in the same area, but you're comparing it back to a much higher SSB0 at the virgin conditions. We're going to move on to projections, but are there any questions on the model itself, the assessment model? All right.

The projections for this are a little bit convoluted, a little confusing, but we're going to try and work through them. In the SEDAR 9 update process -- Obviously the ideal is to use an MSY-based projection. Without confidence in the stock-recruitment parameters, which we didn't have during the update and we don't have now, we're going to use a proxy for MSY.

Typically, that is a SPR-based proxy, with SPR 30 having been used historically for vermilion snapper. During the update assessment and the projection process, it was discovered that a yield per recruit, or basically an Fmax projection, produced an F that was quite a bit lower than the SPR 30 F, which is shown in the graph down here, where the Fmax yield per recruit analysis is the blue line, the SPR 30 analysis is the green line, and the resulting fishing mortalities that came out of them are shown with the two dashed lines, with the SPR 30 being up close to one and the Fmax fishing mortality rate being below 0.5.

At the time, given this result, the yield per recruit analysis was used for projections and for management purposes. Critical to this occurring here was one of the things that we spent some time on earlier, which is this fecundity-at-age comparison. Now, we spent a lot of time discussing how the yield per recruit, the Fmax, analysis ended up producing a lower fishing mortality rate than the SPR 30 analysis.

We did a couple of exploratory model runs with the updated data, as well as looking at some of the 2011 data that was available, and discovered that, even with the updated data, if we included this fecundity-at-age that was used in the past, we were able to recreate the scenario where we got an Fmax F that was below our SPR 30 F.

The reason being for that, sort of as we touched on earlier, is that, with this relationship, you don't have any big gains by having these older fish in the population. You can fish them extremely hard and still get good spawning stock biomass out of your young fish.

With the new fecundity-at-age relationship that we have here, there's a lot more value in maintaining older animals in the

population, and so when we looked at projections for SEDAR 45, the initial goal was to do an SPR 30 projection. Then, from conversations with Steven, we learned about the fact that the Fmax approach was used in the past and that we should explore that as well as a potential alternative for projections, which we did.

The change here in this fecundity-at-age relationship, as well as to a smaller, much smaller, extent the change in the shrimp bycatch, made it such that the SPR 30 analysis was the much more conservative projection, where it resulted in the F for the SPR 30 in the SEDAR 45 analysis being quite a bit lower than the F when we just did a straight yield-per-recruit analysis. We'll see some more of that in the next couple of slides.

For the projections, the assumptions that we had going in was that F should be equal to -- From the terms of reference, we should project the fishing mortality rate equal to FMSY, if possible. As I just said, FMSY was not considered to be possible, because the stock-recruitment parameters were not deemed to be reliable, and so we projected out a proxy.

We were asked to produce an optimum yield projection, a F rebuild, if necessary, and an F0, if necessary. Neither the F rebuild or the F0 were done, because the stock was not considered to be overfishing or experiencing overfishing.

We were also asked to do projections with landings fixed at the 2014 target and then for all of the projections -- If the short-term projections indicated a declining trend, to develop a constant catch projection for those scenarios. As I said, we looked at both the Fmax yield per recruit as well as the SPR proxies and are presenting the SPR proxies here, based on the fact that, given the updates in the data, the yield per recruit Fmax proxy no longer seems to be a viable alternative.

All projections were done based on a sixty-year projection, where we assumed that equilibrium was reached over the last ten years. The MSST was calculated as one minus M times the SSB proxy, where the natural mortality rate here was set equal to 0.25, for the purposes of calculating MSST.

All of the fleet dynamics in the projections were allowed to continue as they were in the terminal year. Shrimp bycatch was fixed at the recent average value, and then we were able to obtain provisional landings for 2015 and calculate some provisional landings for 2016, such that projections will start in 2017.

Recruitment, rather than using the stock-recruitment parameters, was fixed, and we fixed it at the geometric mean of the most recent part of the time series, 2004 to 2014, so that that value was recruited every year in our projections. Again, we did that because the stock-recruitment parameters were not thought to be reliably estimated.

It's important to keep in mind that, when we're using a constant recruitment assumption, rather than using the stock-recruitment relationship, that this is really only appropriate for short-term projections, because obviously, at some point in time, there is a stock-recruitment relationship. You can't get recruits with no spawners out there, and so you can run into some potentially dangerous situations if you do long-term projections without a stock-recruitment relationship and just take the results you get at face value.

The projections and the yields that we're going to look at are all from short-term projections rather than long-term equilibrium-type projections, because it's not appropriate to do those in the absence of a stock-recruitment relationship.

MR. ATRAN: This is a minor point, and maybe somebody who is a little bit more up on the statistics can answer this for me, but on using the geometric mean rather than an arithmetic mean, I thought the geometric mean was used if you were averaging ratios, and aren't these recruitments absolute numbers? I am just wondering if geometric mean would be the correct way to go. It's probably not going to make a big difference, but it's just something I would throw out there.

DR. SMITH: I don't think we calculated the arithmetic mean to know whether or not it differed greatly from the geometric mean. In this case, the geometric mean has been used for doing this type of analysis in the past, and it was used here as well. Statistically speaking, I'm not sure what the explanation is for why that's more appropriate or not.

DR. POWERS: Remember when you did the actual stock assessment, those sigma_R's, you're using a log deviation, and so that's sort of equivalent.

DR. SMITH: Correct.

CHAIRMAN BARBIERI: Matt, that's consistent with the expected distributional pattern, but let me ask you something. In terms of you using the average recruitment, were you able to insert

any kind of uncertainty or stochasticity for your recruitment stream and the projections?

DR. SMITH: No, for this exercise, we just basically did a deterministic analysis, where the recruitments were coming in at the geometric mean of that time period without any variation. We didn't do stochastic runs, where we allowed that to vary randomly based on some measure of uncertainty, potentially the sigma_R from the stock-recruitment relationship. This was just done deterministically.

The result of that shows up in the propagated uncertainty in the projections and leads us to, rather than using, which we will get to, but, rather than suggesting a P* type of approach to setting a control rule for this, to err on the side of using something like the optimum yield. That's what the analytical team has come forward with as probably the best possible solution for vermilion snapper, but that would be up to you guys to decide.

This is a little more fine-tuned detail on the projections. The relative F values were fixed at the average from 2012 to 2014. This has become sort of a standard practice. We take the last three years of fishing mortality rates and use the ratio between the different fleets that you get from that in the projections. The magnitude of fishing can increase or decrease, but the ratio between the fleets will be maintained at whatever it was from this most recent part of the time series.

Selectivity from the terminal year was used for all the fleets. We didn't have time-varying selectivity, and so that could have been any year, but, in this case, we used the last year.

Recruitment was fixed at 17,343,300 fish, which is that geometric mean value that we got from before. Shrimp bycatch was fixed at the 0.0735 and kept at that rate, and so it was not varying with time and it did not increase or decrease with the other fleets, as they were adjusted. The shrimp fishery was held fixed.

The 2015 landings from the provisional data were estimated to be 2,311,000 pounds whole weight and then the 2016 landings were calculated to be 2,733,000 pounds whole weight, and those values were used to fill in the gaps for 2015, 2016, and projections, so that we could start projecting in 2017.

MR. ATRAN: That bottom row, I'm a little confused on your explanation. That 2016 landings is a terminal three-year

average 80 percent of ACL and so you're taking 80 percent of the ACL for each year and averaging those out or you're taking 80 percent of the actual landings for each year?

DR. SMITH: The 2015 provisional landings, we had data almost completely for that. For 2016, we didn't have very good data at all for the landings, and so the options for us to use were we could just plug in the ACL and say that the ACL was going to be caught in 2016. If we look back at historical data for this -- In the past, the ACL has not been reached, for the past five or six years or so, or possibly longer.

Rather than just say, given that information, that they were going to catch the ACL in 2016, we opted to calculate basically the average underharvest that was being done in the past, which turned out to be roughly 80 percent, and take 80 percent of what the ACL for 2016 was scheduled to be and use that as the landings.

As I've been sort of suggesting and hinting at this the whole time, just to recap, with uncertainty in the projections, fixing the recruitment, as Luiz pointed out, as well as other parameters, where we didn't incorporate any specific uncertainty into the model, led to underestimated uncertainty in the projections, as well as a low stock-recruitment variance.

The outputs that we from our stock-recruitment did not seem to be appropriate for a P* type of approach. We did some rough P* calculations, using the previously-assigned value of P*, and the difference between the OFLs and the ABCs from that type of approach were miniscule. They were on the order of 50,000 pounds, and so just not even worth doing the calculation.

Based on that, and from historical assessments, where we've had problems with uncertainty in the projections, we proceeded, and we were doing the optimum yield runs anyway, because they were in the TORs, but we decided, as the analytical team, that the best available information we had for establishing an ABC would be to put forward the FOY run as a candidate for that.

Now we will get into some projection results. I hinted at this earlier, and I was looking for this slide, and I couldn't remember where it was, but here it is now. This is the result of the yield per recruit, so the Fmax run, on the left, as well as a -- This is an Fmax run with the fixed bycatch, and so this is the fixed shrimp bycatch, which is what we're using for our current projections. We are fixing our bycatch.

In the past, they had used a linked bycatch, and the linked bycatch basically allowed the shrimp fishery bycatch to increase or decrease with the directed fleets, which is not necessarily realistic, because what the directed fleets do or do not do in response to management doesn't necessarily impact how the bycatch fleet is going to operate, but this is an approach that was used in the past, and we explored it as well, just to see what the implications were for the Fmax calculations.

With the fixed bycatch, we went through a yield-per-recruit analysis on the vermilion snapper, and we wind up with the maximum yield per recruit occurring at a fishing mortality rate of about 0.246, which winds up with an SPR in the range of 0.12.

From the linked approach, we see, rather than just this asymptotic, we at least see a relationship occurring. Again, though, fishing mortality rate winds up at about 0.16. It's hard to see there, but that is 0.16, and it results in an SPR of 0.22. From the SPR 30 analysis, we wind up with a fishing mortality rate of 0.11, approximately. That gives us an SPR of 30 percent in equilibrium.

Based on the fact that we're using a fixed bycatch approach, our alternatives, and this is sort of more of a justification for why we steered away from using the Fmax, was that we were winding up with this situation, where we had an asymptotic yield-per-recruit type relationship that resulted in extremely high fishing mortality rate and a very low spawner per recruit ratio, versus the SPR 30, which, given the new fecundity-at-age relationship, seems to make a lot more sense, in terms of managing this stock, resulting in a more modest fishing mortality rate that, as we'll see, is still capable of producing ACLs in the order of where they have been in the past, as well as protects spawning stock biomass, by having a much more high SPR ratio of 30 percent.

CHAIRMAN BARBIERI: Just a second, Matt. Steven, do you have another question?

MR. ATRAN: A comment. I could probably hold off, if you want.

CHAIRMAN BARBIERI: Well, I mean if it's relevant.

MR. ATRAN: Well, it is. I think you're kind of just dismissing this 12 percent SPR as a potential target, but our National Standard 1 Guidelines state that -- This is in defining what MSY is supposed to be, but, by inference, the SPR associated with it is the largest long-term average catch that can be taken from a

stock under prevailing ecological and environmental conditions and fishery technological characteristics, such as gear selectivity and distribution of catch among fleets.

If your more realistic model is showing the 12 percent versus the 30 percent, I think it's worth actually considering that. I'm not sure that it's any less sustainable, given that you really have no discernable relationship on your spawner-recruit curve, but, if you go by what the National Standard 1 Guidelines say, you should at least be considering that other SPR.

CHAIRMAN BARBIERI: Let's discuss this later, in terms of choices of reference points. I mean, it looks to me, if we go back to your previous slide, that you had given us some background to explain that the results of Fmax, the values of previously-estimated Fmax to F30, had been unusual.

I mean it was kind of unexpected for a species like vermilion snapper, but then the fecundity, the changes in fecundity-at-age, I mean all the life history parameter changes, the updates, I think justify well that this new set of reference points actually comes across much more sensibly and fall into the pattern that would be expected.

To me, this justification made a lot of sense, and so going with that -- To me, in this case, it would be up to the committee to choose recommendations in terms of the exploitation reference points that might be different from Fmax, because it's well-justified and biologically-meaningful, given this latest assessment, and so I don't see a reason why we should -- You know we have to remain with an estimate that's based for the exploitation status and catch advice that would be based on Fmax.

DR. SMITH: I think was sort of the direction that the analytical team was leaning. This had historically been managed under an SPR 30 reference point, and then, during the update, we had this situation occur, which we believe we have sort of rooted out the reason that this happened, where the Fmax was almost half of what the FSPR 30 was, which is an unusual result, to say the least.

At the time, during the update, this was the situation, and the more prudent approach was to adopt Fmax for management purposes. However, in the past, SPR 30 had been put forward for this species, and so when we looked at this, and certainly, as the analytical team, we basically saw it kind of return back to a situation which seemed more consistent with vermilion snapper

life history, where the SPR 30 was a much more conservative approach.

When we look at the yields that come out of that, and given the history of this fishery, where they haven't been hitting ACLs anyway, we wind up with a situation that you can sort of have the best of both worlds, in our opinion, from SPR 30, where you can maintain a higher spawning stock biomass as well as have yields that come out of it that are basically right at where the ACL is now and allow the fishery to continue operating as it has, in the near term.

Then when we come and reassess this, if the situation has changed and landings for vermilion snapper have gone up, it may become an issue for conversation then as well, but I also understand that there are procedural issues in place, which I think is what Steven is concerned about. The specifics of the procedurals for this, I am by no means an expert on, but I know there are issues in play there.

CHAIRMAN BARBIERI: In that case, I mean the management -- The FMP, the management reference points, have traditionally been based on the 30 percent SPR metric, and so the last time, we actually had to justify the use of Fmax, because of this particular outcome.

We had to depart from the fishery management plan and the council-chosen reference points, because of that. In this case, I think you're provided very good justification and explanation for why we are back to considering an F 30 reference point, and the whole thing just kind of seems to fit so much better into what would be expected biologically than what we saw the last time. To me, this type of justification would have to be substantiated in our report, but, to me, it makes more sense this way.

MR. ATRAN: Procedurally, and, actually, this is going to tie in with the last item on the agenda, which is Draft Amendment 44, setting MSST and MSY proxies. We're trying to make sure that all the species we have under the Reef Fish FMP have some MSY proxies or the actual MSY, and I've had a very difficult time trying to actually track what we've been doing with vermilion snapper.

Officially, in our FMP, and our attorneys tell us that it's the council that decides what proxy is to be used. It should be based on a recommendation from the SSC.

Officially, what our FMP is says is don't use a proxy, use the actual MSY and FMSY estimates. As you pointed out, the past couple of assessments used F30 percent SPR, and then the update assessment used Fmax, and I think it was because Fmax was producing a more conservative value than F30 percent. I'm not quite sure -- I'm still trying to digest what you've got here, but, at some point, I would like the SSC to make an explicit recommendation of what MSY proxy is going to be used, and I will make sure that this gets into this MSY proxy amendment, because, once the council agrees with you, we're going to be stuck with that for a long time. It takes a full plan amendment to officially change it.

DR. SMITH: Okay. We do have -- They're not in this presentation, but if it comes to it, after we wrap up and discuss, if people on the SSC want to see the Fmax results, I am almost positive that I have them. We can get them queued up and we can look at them.

The direction that the analytical team wanted to go when we were putting together this presentation was to try and present a case to go back to the FSPR 30, which we think is an appropriate reference point for vermilion snapper, and to proceed in that direction, but we did, because of the conversations we had with Steven leading up to this meeting and months ago, we knew that the Fmax had been used in the update, and so we did these analyses to see how that would flesh out, given all the updates to the life history and the data.

Those runs do exist. They're not in the presentation that we're looking at now, but, if needed, I can get them dug up and displayed, so people can see them.

The mortality rate metrics, as we had in the previous slide, the F associated with the SPR 30 percent was 0.103, F at optimum yield was 0.087, and F current is estimated to be 0.075, which then, when we take the F current over the MFMT, was 0.073, suggesting that overfishing is not occurring in vermilion snapper.

In terms of the biomass metrics, I won't go through all those big numbers, but the important part is that, in the bottom three rows, the SSB current estimate over the SSB FSPR 30 proxy is 1.05, over the MSST is 1.4, and the SSB current over SSB0, or the SPR currently, is estimated to be 0.32, and the stock is currently estimated to be above the 30 percent reference point and not overfished, by either the MSST or just the SSB FSPR 30 reference point.

For projections, and so these are not the constant catch projections, but the raw projections, we see that the SPR reaches 30 percent relatively quickly in the projections, around 2024, and then continues that way ad nauseum with the projections.

The OFLs are decreasing and then seem to stabilize around 3.37 or 3.39. The current ACL is 3.4 million pounds and so, when projecting at the FSPR 30, we wind up back in the situation where we're basically looking at roughly the same scenario that we've had in the past for this species, which makes sense when you think about it, because we're right around our management target, that these would wind up roughly the same as they have been.

Projecting at OY, the values come out somewhat lower. We wind up roughly around three-million pounds at equilibrium, and we do have constant catch projections for these.

Constant catch, there were two. The one TOR requested a catch at the 2014 target. We interpreted that to be the 2014 ACT, and so we projected at 2.94 million pounds constant catch. That resulted in an SPR of roughly 0.34 or 0.35, and so we can continue that catch level for the near term and the stock should remain not overfished.

Then, in terms of the constant catch version of the OY projections, we took an average of the first five years, 2017 through 2021, which was 3.11 million pounds, and projected at that. Again, projecting at that level of removals did not result in the stock becoming overfished.

This is sort of a grand summary and then we can discuss. We migrated from the Statistically Structured Age Structured Production Model to SS3 and updated the median shrimp bycatch, which has decreased severely. That had strong impacts on the virgin SSB and recruitment and also some impacts on the terminal stock status, which we looked at.

We updated the commercial CPUE time series to include the IFQ and the projections that we did, we believe they severely underestimated uncertainty, such that the traditional, or the often-used, P* type of approach is not appropriate, at least at this current junction, for setting ABCs.

The model results indicated that the stock was not overfished and not experiencing overfishing. Then projections at FOY, in

the bottom slide here, you have the projections that we looked at. This is the not constant catch OY and the percent of the current ACL that it represents, about 94 percent, down to 88 percent. Up top here is some of the historical data that we used earlier, in terms of the percent of the ACL that has historically been caught by this fishery, which averaged out to around 80 percent in the past.

Long story short, the projections and the yields that are coming out of the optimum yield stream would be a slight reduction from the current ACL, but still would be basically on par with the landings that are being taken by the fishery at present, and that is that, after two-and-a-half hours or whatever that was, and so thank you very much for your attention, and we will do our best to field any questions and dig up information, if it's needed.

CHAIRMAN BARBIERI: Thank you, Matt. That was an excellent presentation, and it was a very informative report as well. Before we go into our action items and go into addressing those, are there any additional questions specific about the presentation for Matt? Leann.

MS. BOSARGE: Matt, again, I don't have the background in this, but I want to make sure I understood something, and it's back to that shrimp bycatch. On Slide 43, you are giving us a snapshot here of the essentially the removals, and we can see, in the past, when the shrimp fleet was a hot-ticket item, before globalization hit us, that there was a whole lot of removals coming from the shrimp fleet.

Predominantly, that was most of the mortality, it looks like, and so when you go back to Slide 13, if you can flip back to that, here is what I'm not sure that I'm understanding. That is your shrimp bycatch, and you were talking about how observer data has shown it trailing off here more recently, and that makes sense, because the fleet itself has contracted substantially, but then you talked about the super-year approach, which is essentially a horizontal line that is closer to more recent year reduced bycatch.

Are you telling the model, with that super-year approach, that assume shrimp bycatch all the way back to the, and I can't see what year, but, anyway, all the way back in time was around this level? You're not letting it see that huge mortality from the shrimp fleet when we were a much larger fleet, versus the lower mortality now? Are you fixing that back in time?

DR. SMITH: No, we're not, and the difference, if you could go up to Slide 17, is the super-year approach actually gets away from the issue you're concerned with, which was that, in the past, the median value had been calculated and had been fixed as a constant removal throughout the time series, and so that was exactly the situation that you're concerned with.

The super-year approach gets away from that, by -- Again, we don't have faith, necessarily, in the annual estimates that we're getting from that analysis of shrimp bycatch, because it's very noisy data, and so we take a median from that, which is that super-year value, and then we use this information in the effort index to influence the estimates of fishing mortality rate that came out of that first slide that you were looking at.

If you look at the trend from that first slide, it's going to be more reflective of the effort, and so the effort is driving the estimates of mortality, and the super-year approach is just kind of scaling the magnitude of the mortality. It's not being held constant through time. That's what was being done in the past, and you're right to pick up on that as not being an appropriate way to go, and so it was addressed during the update assessment, I believe, in 2011, where we shifted to this approach where we used the effort index as well as the super-year approach.

CHAIRMAN BARBIERI: Excellent point, Leann. Kai.

DR. LORENZEN: First, I wanted to compliment the assessment team on a job that looks really well done. One comment on the shrimp bycatch, that is switched to the size or age-dependent natural mortality rate, which assumes a higher natural mortality rate at age-one, of course, should overall reduce the impact of the shrimp bycatch in the assessment, and so there is a slight change there that people may not have noticed.

Finally, I wanted to come back to the growth model, briefly, because, if I recall your comparison between the 2011 update and current continuity model and the current base model, I think you mentioned that a large part of that change was attributable to the change in the growth model. Is that correct?

DR. SMITH: Yes, and when we were introducing all these different data updates, we did so in sort of a sequential process, and when we updated the life history, which was the growth model as well as the reproductive, the reproductive update sort of caused a lot of smoothing. The previous assessment had been very jaggedly peaked. The reproductive smoothed it, and the growth model update sort of stretched it.

DR. LORENZEN: I don't see a big issue there, and I think the growth model -- The current way of estimating the growth model is probably an improvement over what you've done in the past. At the same time, I think, and this is a note for perhaps the next assessment, but I think it would be useful to take a closer look at the growth model and the way it's estimated, perhaps include an explicit estimation of selectivity and the growth model, which could be done in assessment or separately.

It may also be useful to look at both temporal and spatial patterns in growth, given that the range of variation seems very, very large, but this is really something for the research list rather than a concern I have about the current assessment. Thanks.

CHAIRMAN BARBIERI: Thank you, Kai. Mary.

DR. CHRISTMAN: I just wanted to confirm that your projections are assuming the last three years of the shrimp bycatch effort, that that effort is going to stay low, projecting forward? I have no idea. Maybe Leann can address whether that's accurate for the future.

CHAIRMAN BARBIERI: Go ahead, Leann.

MS. BOSARGE: I don't see globalization reversing anytime soon and so, yes, I would say that's probably about right.

DR. CHRISTMAN: I hadn't realized that that was what was happening in the industry, and so thank you.

DR. SMITH: To answer Mary's question, that is true. We are basically maintaining those last three years of the estimated values for the shrimp fishery, which are based on that low effort, and projecting them into the future as fixed.

CHAIRMAN BARBIERI: Any other questions or comments or suggestions for Matt? Then let's proceed in addressing our action items for the committee. I will draw your attention to Item XVII in our scope of work.

SSC members should determine if the assessment is the best scientific information available, and, if so, which model run to accept for management. In this case, we have a base model presentation from Matt. If the assessment is accepted, the SSC should determine, in a separate action, if the stock is overfished or is experiencing overfishing. That's basically

whether we accept the stock status determination that came out of this base model or not.

The SSC should then use the ABC Control Rule Tier 1 Spreadsheet to determine the appropriate P* and should recommend yield streams for OFL and ABC to achieve the rebuilding target if the stock is overfished, or to maintain the stock at levels at or above SSB MSY if the stock is not overfished.

You may remember that Matt pointed out that the analytical team is recommending that we don't use the P* approach, given the fact that the uncertainty propagation within this assessment couldn't be done in a way that would include what they believe is the realistic amount of uncertainty, much larger than what it actually came out.

I am going to then ask you to think about, initially, the best scientific information available. If that's the case, I mean that automatically puts us in a situation of accepting the stock status determination as presented by the base model. Then we will proceed with the other action items. Steven.

MR. ATRAN: Just a slight modification on what you said. You're right that the first thing should be determine if this is the best scientific information available, completely independent of what the results are.

If you do, in between that and accepting the base model, as I said before, I would like to get a specific recommendation on which MSY proxy you want to use, so that I have something to support my other work on the amendment setting MSY proxies. I think I know which way you're going to go with that. Then you can determine your overfished and overfishing status and any projections.

CHAIRMAN BARBIERI: We can do it that way if that's your preference. I mean, since the base model already includes some reference points the analytical team has put forth, suggested 30 percent SPR reference points for exploitation and biomass status, by accepting the base model and considering this assessment the best scientific information available, are implicitly accepting those reference point recommendations as proxies for --

MR. ATRAN: You could accept the inputs or you could accept the outputs, in terms of what is the current biomass or what's the current fishing mortality, but then, depending upon whether you're going to use 30 percent SPR, Fmax, FCmax, and I would

like to know where the "C" came from, or whatever, but now you've got a different number to put in the denominator. You could use the same outputs with different reference points, and so that's really not part of the assessment itself.

CHAIRMAN BARBIERI: That's fine. That's probably my misunderstanding. How do want to structure this, Steven, in terms of the motions by the committee?

MR. ATRAN: The first thing is, is this the best scientific information available? Incorporated in that, you could say it is, but, if you have any concerns about this assessment or any recommendations for what to do different in the next assessment, those should also be explicitly stated, but you can have some stated concerns and at the same time say that this is the best available scientific information, but that's the first item you should address.

CHAIRMAN BARBIERI: Bob Gill.

MR. GILL: Mr. Chairman, would you like a motion to that effect?

CHAIRMAN BARBIERI: I would very much appreciate a motion to that effect, Mr. Gill.

MR. GILL: It's to accept the SEDAR 45 vermilion snapper assessment as the best scientific information available and is suitable for management advice. Not the second part?

CHAIRMAN BARBIERI: Yes, without the second part.

DR. SHIPP: I second the motion.

CHAIRMAN BARBIERI: Thank you, Bob. We have a motion on the board, and it has been seconded. The committees accept the SEDAR 45 vermilion standard assessment, vermilion snapper standard assessment, as the best scientific information available. Is there discussion on this motion, if any? Mr. Gill.

MR. GILL: A little wordsmithing, if we could. "Vermilion" has one "l", and it should have "snapper" after it.

CHAIRMAN BARBIERI: Assuming that this is pretty much a consensus, let me ask if there is anybody opposed to this motion? Seeing no opposition, the motion is unanimously accepted. It passes unanimously. The next motion, Steven?

MR. ATRAN: If you would accommodate me, I would like a recommendation as to which MSY proxy you feel should be used. I think you've already provided a rationale. I may need to go back and discuss some of that with you later on, but a specific recommendation of what proxy should be used for MSY would be very helpful to me.

CHAIRMAN BARBIERI: Mr. Gill.

MR. GILL: Thank you, Mr. Chairman. A question. In previous assessments, we've gotten hung up over suitability for management advice, and my understanding was that we always want to state whether it is or it is not. We seem to be not doing that this time, and why is that?

MR. ATRAN: If you would like to make a specific recommendation to that point, you can. I was just starting to get into the specific details, but, Doug, do you remember what Mara said on this?

MR. GREGORY: No, and we can go back and look at the report from the last meeting, but I remember saying that that wasn't really necessary or a purview of the SSC, but she was -- She didn't say it that directly, but that was my impression, but I'm not sure.

MR. ATRAN: I think one of the problems is that, in a previous assessment, it was accepted, but there were issues with the assessment. Not everything in the assessment was useful, but some things were useful, and so accepting it carte blanche as useful for management advice created some legal issues that, fortunately, we were able to work around.

CHAIRMAN BARBIERI: I mean, going back to the motion on the MSY proxy. Let me just remind the committee that, by accepting the assessment as presented as the best available science, we are implicitly accepting the choices of reference points as suggested by the analytical team, which right now are based, both for exploitation and biomass, on 30 percent SPR. Is that okay, Steven? I am just reminding the committee that the base model -- The way that I have understood this process is that the analytical team, whether it's a benchmark update or a standard assessment, evaluates all the different criteria and all the different data and all the different issues associated with the assessment and makes a recommendation on the reference points for exploitation and biomass, whether we're going to use MSY directly or whether the base model is going to be based on an SPR proxy.

In this case, we got a presentation using SPR 30 percent, and that was justified by the updated fecundity function and the maturity functions and all the other life history information. For this assessment, we are departing from the Fmax reference point to go to a 30 percent.

MR. ATRAN: Actually, and it wasn't in the presentation, but in the assessment itself, Table 21, summary of MSRA benchmarks and reference points, it does provide some status determination reference points for F30 percent SPR and FCmax, and I think Fmax is in here as well. Basically, you do have a choice. Your choices would be to use the actual FMSY, which is not presented in here, and I think Matt gave some very good rationale why it shouldn't be used.

Use the FCmax, which corresponds to 12 percent SPR and F of 0.246, use Fmax, which is an F of 0.081, and I'm not sure what SPR that corresponds to, or use F30 percent SPR, which corresponds to an F of 0.106.

CHAIRMAN BARBIERI: Do you want to present this in the form of a motion, Mr. Atran?

MR. ATRAN: I am asking somebody to make a motion that says we recommend that X be used as the proxy for MSY.

DR. POWERS: I would like to move that the council recommends that the MSY proxy be the fishing mortality rate at 30 percent SPR and the biomass at 30 percent SPR. I guess it really shouldn't be biomass. It's egg production, but, still, you get the point.

CHAIRMAN BARBIERI: He's talking about both the exploitation and biomass proxies for MSY.

MR. ATRAN: Or MSY be the yield when fishing at a fishing mortality rate of 30 percent SPR.

CHAIRMAN BARBIERI: A friendly amendment, Mr. Atran?

MR. ATRAN: I can't make friendly amendments, but I was -- The MSY proxy be the yield when fishing at --

DR. POWERS: Doesn't that need to be FMSY?

MR. ATRAN: It either has to be FMSY or it has to be MSY be the yield, because MSY is a yield and not a fishing mortality rate. At the fishing rate of 30 percent SPR.

CHAIRMAN BARBIERI: Despite the language, we all understand that we're talking about MSY estimated directly, using the stock-recruitment relationship or using proxy reference points at 30 percent SPR for both exploitation and biomass. We have a motion on the board and a second by Ben. Is there discussion on the motion? **Again, assuming that this motion will have major acceptance by the committee, let me ask those in opposition to this motion, would you please signify that by raising your right hand? No opposition, and this motion carries unanimously.** The next motion you need, Mr. Atran?

MR. ATRAN: I guess the next thing is, before you recommend projections, you were talking about there was a recommendation that the P* method not be used?

CHAIRMAN BARBIERI: No, that's discussion that we're going to have to have as a committee. I mean the analytical team has made a point to say that the model outputs, as presented in this assessment, don't have enough uncertainty for us to be able to, likely, properly apply our ABC Control Rule Tier 1, and so they are suggesting a different path, in terms of catch advice going forward, and we're going to have to discuss this as a committee, in terms of the yield streams that we are supposed to provide for OFL and ABC for the council, but just to make sure that we get all the necessary committee actions, in terms of stock status determination.

MR. ATRAN: You're correct. The next item, I guess, would be, having accepted the stock assessment and having recommended a proxy for MSY, now you're in a position to recommend the overfished and overfishing status.

CHAIRMAN BARBIERI: Don't everybody jump in all at once, please. **Then I'm going to make a suggestion here that the committee recommends that the SEDAR 45 stock assessment of vermilion snapper determines that the stock is not overfished and not undergoing overfishing.**

SSC MEMBER: The one thing I would change would be the committee determined, instead of recommend.

DR. TOLAN: A question on the motion. Are we determining that or are we agreeing with the determination of the assessment?

CHAIRMAN BARBIERI: Dr. Shipp.

DR. SHIPP: **I think the verbiage should be that the committee**

accepts that the SEDAR 45 stock assessment, et cetera.

CHAIRMAN BARBIERI: Dr. Shipp, given that recommendation, which I accept, would I correctly interpret that as you seconding this motion, as modified?

DR. SHIPP: Yes, you have correctly determined that. Again, you're right on.

CHAIRMAN BARBIERI: Thank you, Dr. Shipp. The motion on the board is the stock status determination for vermilion snapper, as the result of SEDAR 45, is not overfished and not undergoing overfishing. Is there discussion on this motion? Bob.

DR. SHIPP: Again, it's minor editing, but it should be "the committee accepts" and it should be "vermilion snapper determination". I think that's a little bit clearer verbiage.

CHAIRMAN BARBIERI: Any opposition to this motion? Seeing none, the motion carries unanimously. Now, Mr. Atran, I think we are ready to proceed with discussion of catch advice to the council.

MR. ATRAN: I am trying to figure out where does this item fit in about the Tier 1 not being adequate for this particular assessment, or do you feel that there's already been enough discussion on that?

CHAIRMAN BARBIERI: Well, I think that this is part of catch advice to the council, whether we're going to determine that catch advice would be based on an ABC stream applying our Tier 1 of the ABC control rule or whether we're going to develop or provide some other methodology for providing yield streams of OFL and ABC.

With that, we have a situation here of vermilion snapper that the assessment couldn't really account for a lot of the uncertainty in the data and parameter estimates, and the analytical team is recommending that we forego application of our Tier 1 P* approach for ABC determination, using our ABC control rule, and they actually recommended, or suggested perhaps, the use of an optimum yield yield stream for ABC, given the reduction in yield from OY to MSY or its proxy, and so there would be a built-in kind of a buffer there between OFL and ABC if we set ABC equal to the yield stream at OY. We need to discuss those issues as we think about moving forward in providing those yield streams. Mr. Atran.

MR. ATRAN: An alternative to that is, if you feel that Tier 1

is not an appropriate method to use out of the ABC control rule, is to drop down to Tier 2 and see if that's appropriate. Tier 2 says to calculate a probability density function around the overfishing limit that accounts for scientific uncertainty, but, instead of calculating what a P* should be, you select from a set of options, risk of exceeding OFL equals 50 percent, equals 40 percent, or equals 30 percent. That would really kind of correspond to just selecting a P* of 0.5, 0.4, or 0.3 without doing the spreadsheet calculation.

CHAIRMAN BARBIERI: It might be helpful, Charlotte, if you could just project the document there of our ABC control rule. This is our ABC control rule, as approved by the council in the Generic ACL/AM Amendment. Jim.

DR. TOLAN: The beginning of this says that an assessment exists, but does not provide an estimate of MSY or its proxy, but we just passed a motion that said we agree that the proxy for MSY is going to be the F at 30 percent SPR, and so we really are sort of boxed out of using the Tier 2.

CHAIRMAN BARBIERI: No, because if you read the whole language there, Jim, it says "and the probability density function of overfishing limit that reflects the scientific uncertainty for Tier 1" as a condition for use", and so a quantitative assessment provides both an estimate of overfishing limit based on maximum sustainable yield of its proxy and a probability density function of overfishing limit that reflects scientific uncertainty.

In this case, basically what the analytical team was telling is that we don't have a PDF of OFL that appropriately reflects the distribution, taking into account all of the uncertainty that's expected. Is that right, Matt?

DR. SMITH: That is correct.

CHAIRMAN BARBIERI: As Steven pointed out, another option is to use Tier 2, but, if Tier 2 -- Actually, looking at this Tier 2, I mean, really, you still need to have an OFL that properly accounts for the scientific uncertainty, right? I mean it gives the different levels of the equivalent of P* as the risk of exceeding OFL, but you still have to have a properly-estimated PDF of OFL.

MR. ATRAN: Yes, and this really isn't worded very well compared to the way that we run things, but obviously the OFL is going to be the yield where you've got the 50 percent probability of

exceeding whatever your true overfishing yield should be, and so that would be a P* of 0.5, and then your ABC would be 0.5 or lower, and this says just to select one instead of trying to calculate one.

As far as the probability density function itself, I think the last one or two times that you've done a PDF, rather than try to calculate a variance for the PDF, you have just gone with a fixed variance of 0.37, based upon the Martell and Froese report.

CHAIRMAN BARBIERI: I understand that, but if the risk of exceeding OFL there is expressed as a percentage, and so this is going to have -- You still have to apply a value to a PDF of OFL to come up with the actual -- If we don't have a PDF -- I mean this is what the analytical team is telling us. If we choose, for example -- Suppose we choose B, and so the risk of exceeding OFL is 40 percent, which, in reality, that's your value of P*, but that value of P* will have to be used in conjunction with a PDF of OFL, so we actually know what the ABC value, the actual catch, that's going to be associated with that probability of overfishing.

MR. ATRAN: That's what I've been saying. One of the problems, in the past, with trying to calculate a PDF is that you've looked at a range of model scenarios, usually fluctuating the natural morality rate, to try to get some idea of variance, given the uncertainty in the assessment, but you have not gotten very high levels of variance out of that.

I know at least one time in the past, and maybe more, that you used a global standard deviation that came out of the report that was done by the Pacific Council, where they looked at a number of stocks out in the Pacific and came up with a pooled variance of 0.37. My understanding is that, if you're using a predetermined variance, that you can develop a PDF on just about anything. Am I incorrect about that?

CHAIRMAN BARBIERI: Clay.

DR. CLAY PORCH: Steve, you're right. I mean he's referring to the Ralston approach, where they looked at the empirical performance of a lot of assessments in the Northwest and came up with a variance for the OFL.

You could borrow it from the Northwest assessments. I don't remember the example you're talking about where we actually applied it. The ABC Control Rule Group looked at it, but

obviously it's not codified here, and so I mean maybe there was a species we applied it, but I don't recall, whereas we have applied the 75 percent of the FMSY proxy, I think, for a couple of species.

In fact, Will Patterson had made a recommendation that we codify it in the ABC control rule, and, of course, when it went to the council, that got kicked back to us, and so that's part of the reason that Tier 2 is almost unintelligible and not especially useful. It really needs to be rewritten, but the bottom line is -- I can't remember which species, but I believe, for a couple of them, we have used the 75 percent, the OY definition, for the ABC.

I can't recall when we have used the Ralston et al. variances. The idea was we would eventually repeat that sort of analysis in the Southeast and then present that as a possible alternative, but we just haven't done it yet.

CHAIRMAN BARBIERI: A couple of issues here. I mean we could -- Your suggestion is that we could use the Ralston et al. CV to actually estimate a new PDF of OFL, using that measure dispersion there, to come up with the shape. If we do this, we could just apply a Tier 1. I mean we're just going to need to make a choice of P* based on the application of the Tier 1 ABC control rule and then request stochastic projections that would be done at that level of catch, given that probability of overfishing as determined by the ABC control rule. That's another option.

We wouldn't be able, most likely, to have this done at this meeting, but we could request -- Just to clarify, when we make a catch level recommendation to the council, we are required to make recommendations on ABC yield streams, and those are supposed to, according to NS 1, to be made according to our ABC control rule or we have to provide a justification of why we're departing from our ABC control rule, and so we have that option, which we could go with some other value of ABC that is less than OFL and we feel would help us better account for uncertainty in where the actual OFL is.

Another option is for us to borrow the Ralston et al. CV of OFL that has been used in the Pacific, I believe, and then use that and ask that the analytical team go back and prepare a new PDF of OFL that would use that CV.

Hopefully that wouldn't be too narrow and it would better account for the shape of the PDF that would give us realistic

probabilities of overfishing. If we use that and we come up with our yield streams, we have stochastic yield streams at P* 50 percent for OFL and whatever value comes out of our ABC control rule for ABC, or we can do something else, if other ideas come to mind. Any specific preferences from the committee on which of those -- Clay.

DR. PORCH: I'm not on the committee, but just, if it helps, you may recall that Rios and Calay submitted a paper where they computed the buffers with the Ralston et al. approach and the FOY approach, and the buffers were pretty similar. They were intended to be a little bit bigger than when we applied P* with the single model asymptotic variance approach, and so I don't think it will make that much difference, and so maybe you might want to focus on being more consistent with what was done in the past, if it doesn't make that much difference after all.

CHAIRMAN BARBIERI: Thank you for that, Clay. We have looked at the performance of applying the 75 percent of MSY, of its proxy, as a yield stream for ABC, and it came fairly close to what it would be if we went through the process of requesting stochastic projections at P*, given the CV of 0.37. As the Chair, I am trying to avoid making motions myself, but -- Go ahead, John.

MR. MARESKA: I guess I will go on record as being in favor of the 75 percent of the MSY rather than the Ralston approach, which is stocks that don't even occur in the Gulf of Mexico.

CHAIRMAN BARBIERI: Can you help out there, John, a little bit, in terms of building the motion?

MR. MARESKA: What we're shooting for here is the -- The committee recommends that we want 75 percent of MSY be used to determine the ABC. Is that right? Of vermilion snapper.

CHAIRMAN BARBIERI: Joe, you're thinking about, instead of 75 percent of MSY, you're thinking about a yield stream at 75 percent of F 30 percent? You're thinking that --

DR. POWERS: We've already said that the proxy we're going to use for MSY is 3 percent, and so it's either way, but the point is that it's not 75 percent of MSY. It's 75 percent of some F level.

CHAIRMAN BARBIERI: That would be 75 percent. Recommends that the yield stream at 75 percent of FMSY. Is that right, John? I am just paraphrasing.

MR. MARESKA: It's not MSY. It's F 30 percent SPR, right?

CHAIRMAN BARBIERI: Of F 30 percent SPR, yes.

DR. POWERS: Charlotte, it would be recommends that the yield stream at 75 percent of 30 percent SPR, et cetera.

CHAIRMAN BARBIERI: It would help, to add to that as well, if we had a projection time horizon here of whether we're going to do three years or five years or however long we would like to recommend that yield stream to be built. Steven.

MR. ATRAN: I'm wondering if maybe that ought to be a separate discussion, and I am thinking maybe you might combine this with saying that the yield at 75 percent of 30 percent SPR be used to determine the ABC and the yield at F 30 percent SPR be used to determine the OFL. Would that make sense?

CHAIRMAN BARBIERI: Do you agree with that, John, as a modification to --

MR. MARESKA: Yes, I would accept that.

MR. ATRAN: The yield at F 30 percent SPR be used to determine the OFL. That covers both OFL and ABC.

CHAIRMAN BARBIERI: I don't believe you have seconded that motion, Mr. Atran.

DR. POWERS: I will second it.

CHAIRMAN BARBIERI: The motion is seconded by Joe Powers. The motion on the board is the committee recommends that the yield stream at 75 percent of F30 percent SPR be used to determine the ABC and the yield at F30 percent SPR be used to determine the OFL of vermilion snapper. Is there discussion? Jim.

DR. TOLAN: Are we going to put a time horizon this? If so, I recommend three years.

CHAIRMAN BARBIERI: Mr. Atran actually requested that we do this through a separate motion. Any other questions or discussion points regarding this motion? **Seeing none, then let me ask if anybody is opposed to this motion as presented? Seeing no opposition, the motion is approved unanimously.** The next motion, Mr. Atran?

MR. ATRAN: Obviously I'm not going to make a motion, but I

guess now is the appropriate time to talk about how long of a time period you want to make your recommendation for, and one of the reasons that I wanted you to do this as a separate item is because it ties in with an issue we've got coming up later on in the agenda about a series of motions that you had made over about two or three SSC meetings last year, where, with a declining yield stream, which it looks like you have here -- Basically, what it ended up with was you saying if, at the end of your time period, there has been no new stock assessment, you should drop down to whatever the equilibrium yield is.

I don't know if we've been presented with an equilibrium yield here, and we've gotten conflicting information from the SSC, conflicting advice, on how to use that equilibrium yield or whether to use it at all. I'm not going to get into that discussion right now, unless you want me to, because it's a separate agenda item, but what we have, apparently, is a stock that is very healthy.

Apparently it's above its 30 percent SPR level, even above its OY level, and so your yield stream is declining. Do you want to limit yourself to only three years, given that? I understand the increasing uncertainty going out in time, but, usually, I think we try to time these things so that we can get a new stock assessment before the yield stream that you're recommending runs out.

As far as I know, there is no new vermilion snapper assessment on the SEDAR schedule, and so I am wondering what to do. If you only do a three-year or a five-year timeframe, what do we do when that timeframe is up? Also, don't forget that, with a declining yield stream, the council would like both the annual yields and a constant catch scenario considered.

CHAIRMAN BARBIERI: Matt.

DR. SMITH: I don't know if it's still up or not, but if you pull up the presentation, since the OY seems to have been approved, we did do a constant catch projection with FOY. It's on Slide 70, just to give you an idea.

CHAIRMAN BARBIERI: Matt, it sounds like a technical, a slight technical, lawyer-ish, but what the SSC is recommending is yield at 75 percent of F30 percent. We are not recommending OY. That's the recommendation that goes with the council, as a management measure.

DR. SMITH: Okay.

CHAIRMAN BARBIERI: I know it's a subtle issue there, if the true values in our minds are the same, but we want to make sure that that is on the record officially, that the recommendation is for yield at 75 percent at F30 percent, and that has nothing to do with the council's choice in determining optimum yield, which follows, according to the National Standard Guidelines, another set of definitions, legally.

DR. SMITH: Thank you for that correction. Then this can just be used as a general reference then, I guess, to help guide conversation. The goal with this analysis was a 75 percent of the F SPR 30 that generated these numbers, and we used an average of the first five years to come up with that constant catch value, and so just to give members an idea of where the SPR goes when fishing at that value for I guess the ten-year horizon that we have up there.

CHAIRMAN BARBIERI: Great. That, I think, addresses that issue, that we now have yield streams for constant F and constant catch. John.

MR. MARESKA: In the timeframe, I kind of agree with a lot of things that Steven has said, but, typically, I don't like to go beyond three years, but, with this fishery, they haven't achieved their ACT or ACL in the past two years, and it doesn't look like any of that is going to change. I am more comfortable with going for five years, in this case.

CHAIRMAN BARBIERI: Do I hear that in the form of a motion, John?

MR. MARESKA: Yes, that can be a motion, five years for yield stream, and so that would be 2017 through 2021.

CHAIRMAN BARBIERI: This would be for the yield streams of OFL and ABC used for projections for vermilion snapper. The motion is from John Mareska.

DR. BLOUNT: I would just say that I agree with him completely and second the motion.

CHAIRMAN BARBIERI: Thank you, Ben. The motion on the board has been seconded. Is there discussion? No questions or discussion points. **With that, let me ask if there is any committee member that is opposed to this motion as presented on the board? Seeing none, the motion --** Marcus.

DR. DRYMON: One just question. Does this suggest that there will be a new SEDAR within five years for vermilion snapper or do we know the schedule that far ahead?

CHAIRMAN BARBIERI: I don't know that question. Mr. Rindone is here and he can help us with that, but, before he says anything, Marcus, we can make a recommendation to the SEDAR Steering Committee that we would like to, and the council will make a choice to the SEDAR Steering Committee on following that recommendation or not, but we can make that recommendation. Mr. Rindone.

MR. RYAN RINDONE: Thank you, Mr. Chair. Included in the list of species that the council has said they would like MRIP calibration updates for is vermilion snapper. Granted, it is on the tail-end of that list, but that would result in updates to the recreational side of things. As far as a dedicated assessment, we don't have one on the schedule through 2019, and so that would give the council 2020 and 2021, I suppose, to see that some sort of assessment was done.

CHAIRMAN BARBIERI: Excellent. Marcus, that was a good point, and when we get our draft report, it would be good to make note of that, that the committee is making that recommendation, and thank you for that. Mr. Atran.

MR. ATRAN: When you get to the point of actually recommending some numbers -- Well, we haven't passed this motion for five years, have we?

CHAIRMAN BARBIERI: Yes.

MR. ATRAN: Okay. You are going to do five years' worth of yield projections and, given that it's a big unknown if we're going to get a vermilion snapper assessment within that time period, you might want to think about what we're going to do in year six and beyond if we don't have a new assessment.

That's where we're running into a problem that we're going to bring up probably this afternoon with respect to hogfish. Do we just fix it at whatever the terminal yield was on year five or do we do something else? At any rate, it's just something to think about when you get to recommending some actual numbers for that five years.

CHAIRMAN BARBIERI: Thank you for that, Mr. Atran. Duly noted. Looking at our list of action items to be completed, I think that providing these yield streams for OFL and ABC complete our

review and catch advice for vermilion snapper, the SEDAR 45 stock assessment. Any other questions or comments from the committee? Bob.

MR. GILL: Thank you, Mr. Chairman. I guess I would ask Leann. We have a declining yield stream. Is it likely that the council is going to come back and ask us for a constant catch? We have that information before us now, and, if that's the case, then perhaps we could address it, if the committee is so willing, but discussion at the council on their druthers for constant catch -- Granted, there's not a whole lot of difference in the yield stream from year to year, but I would like to hear your comments.

MS. BOSARGE: Yes, in the past, we've been asking you for the constant catch quite often. Now, I have to say, at our last meeting or the meeting before, looking at certain stocks, we constantly -- Well, we don't constantly, but we have some members that say we constantly see this declining quota, and there was mention of, well, then let's not go constant catch. Let's catch everything we can right now and we will deal with it later, and hopefully we will get another assessment. I would say, for efficiency's sake, that yes, if you could go ahead and give us the constant catch, then we can look at both and we can see what we want to do.

CHAIRMAN BARBIERI: Thank you for that, Leann. Mr. Gill.

MR. GILL: A follow-on on that thought or a couple of thoughts. One is they haven't been catching their ACL thus far, and so it gets to be a bit of a moot issue. Secondly, there is not a whole lot of difference in the five-year yield stream, 180,000 pounds, if I read it right, and so the constant catch that was projected of 3.11, we're not talking a whole lot of difference.

Given Leann's comments, I'm inclined to let the council address it, and if they want to tweak the little bumps, then we can do it. If they don't, that's fine, but given that the catch levels have not been approaching their limits or their targets, I'm inclined to let it lie.

CHAIRMAN BARBIERI: Thank you for that, Bob. Any other questions or comments? I think this helps, Bob, in terms of the report and the presentation to the council, envisioning questions that might come up and how we are justifying going the way that we are going. We are now ten minutes after twelve noon. Mr. Atran.

MR. ATRAN: You did not make a specific -- Well, I guess maybe you did. My understanding then is that, as a result of that last motion to recommend five years of yield projections, that you are recommending the projections at FOY for 2017 through 2021 that's on slide --

CHAIRMAN BARBIERI: No, sir. Just for the record, and I think our motion is explicit to that effect, if you can put that back up there. The committee recommends that the yield stream at 75 percent of F30 percent SPR be used to determine the ABC and the yield at F30 percent SPR be used to determine the OFL of vermilion snapper.

MR. ATRAN: Maybe I'm wrong, but I thought what Matt was calling FOY was 75 percent of F30 percent SPR.

CHAIRMAN BARBIERI: That might be the case. I am just clarifying that the SSC made an explicit motion that does not list FOY, which is the purview of the council.

MR. ATRAN: Perhaps, before we get off of vermilion snapper, we ought to have some explicit motions to recommend a specific OFL stream and a specific ABC stream. That way, there would be no confusion.

CHAIRMAN BARBIERI: Let me make a suggestion here. We are going to take a break for lunch. Basically, you would like to have a table under that lists the actual years and the values of OFL and ABC under the top motion there?

MR. ATRAN: You have already passed that motion. Either that or do a separate motion that has those lists.

CHAIRMAN BARBIERI: But we can just help document in our report, if you don't mind, that we can have a table that has those actual, because it's just a copy-and-paste from Matt's -- It's just relabeling the table that's in there.

MR. ATRAN: Okay. That will do, if you just want to do that as documentation, and we can get together and make sure I'm pulling the numbers off of the right table. The other thing I wanted to make sure is you're recommending the declining yield stream and you're not recommending a constant catch yield stream, unless the council comes back and says we want a constant catch yield stream, and is that correct?

CHAIRMAN BARBIERI: Yes, that's correct.

MR. ATRAN: Okay, and then the other question is --

CHAIRMAN BARBIERI: This is under advisement from our council liaison, who actually give us her view on how the council has reacted to that and how they may not, in this case, be necessarily pushing for a constant catch.

MR. ATRAN: Then my other question would be, for years six and beyond, if we don't have any new projections before then, is it your intent that we remain at the 2021 catch levels until there is a new assessment?

CHAIRMAN BARBIERI: With all due respect, but I expect that we continue having an SSC five years from now, and that the council can -- We can revisit that issue when the time comes, and I don't think we need to make this decision right now, and I'm saying this because my experience, being involved in this since SEDAR 1, is that the SEDAR schedule is so fluid that nothing says that two years from now that we may not end up with vermilion snapper, even though the schedule now doesn't predict it, and so I think it's a little premature. Mr. Gill.

MR. GILL: Thank you, Mr. Chairman. If I read this correctly, the other factor is that the yield in 2021 is fairly close to the long-term equilibrium yield, and probably within the uncertainty level associated with that, and so it's somewhat of an academic question, at least at this point.

CHAIRMAN BARBIERI: With that, we are now fifteen minutes after twelve noon, and my suggestion is that we break for lunch and that we reconvene at 1:30.

(Whereupon, the meeting recessed for lunch on June 2, 2016.)

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June 2, 2016

THURSDAY AFTERNOON SESSION

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The Standing, Reef Fish, Socioeconomic, Shrimp, and Spiny Lobster Scientific and Statistical Committees of the Gulf of Mexico Fishery Management Council reconvened at the Hilton Westshore Tampa Airport Hotel, Tampa, Florida, Thursday afternoon, June 2, 2016, and was called to order at 1:30 p.m. by Chairman Luiz Barbieri.

CHAIRMAN BARBIERI: If folks are ready, I think we're going to go back to the two agenda items that we had scheduled for the morning regarding the SEDAR process, Agenda Items XIII and --

MR. ATRAN: This would be the next item, if we're going to go back.

CHAIRMAN BARBIERI: Yes, and isn't this related to SEDAR?

MR. ATRAN: Yes. I thought you were talking about two items down.

CHAIRMAN BARBIERI: No, and it's Review and Approval of the Terms of Reference for Gag and Greater Amberjack Update Assessments. Mr. Rindone.

REVIEW AND APPROVAL OF TERMS OF REFERENCE GAG UPDATE ASSESSMENT

MR. RINDONE: Thank you, Mr. Chair. We are looking to update our previous benchmark assessments of gag and greater amberjack, and so you guys have gotten the terms of reference. A couple of things that were added to just the stock language were the bullet under Number 2, which says to reevaluate the potential effects of red tide on gag, with consideration of the most recent red tide events off of Florida.

Then we added some specifics, under Term of Reference Number 3, about updating the model parameter estimates to use the geometric mean of the previous three years' fishing mortality to determine Fcurrent. If you guys feel like arithmetic mean would be more appropriate, then, by all means, make that edit.

Also, to provide yield streams for the overfishing limit and ABC in pounds annually for at least five years and also to provide constant catch scenarios for three and five years for the council to consider. Other than that, it's pretty much what run what you run from last time, and so, Mr. Chair.

CHAIRMAN BARBIERI: Thank you for that, Ryan. Bob Gill.

MR. GILL: Thank you, Mr. Chairman. A question, Ryan. On the yield streams for at least five years, since my recollection is the SSC hasn't provided any yield recommendations past five years, why are we asking for more than that?

MR. RINDONE: Just to make sure that we get at least five years.

If you guys only want to recommend five years, that's fine. You can say annually for five years. That change can absolutely be made.

It's just that with the potential shift to a different method of how we do the stock assessments, which Dr. Porch will elaborate on later, that's being considered by the SEDAR Steering Committee, we may see a short-term shift in the frequency of assessments, and so we would need to make sure that we have a long enough projection to carry us until we can get the next assessment done for any of our species that we have coming through the pipe right now.

CHAIRMAN BARBIERI: Thank you, Ryan. Mary.

DR. CHRISTMAN: Ryan, the gag update is this year, right?

MR. RINDONE: Yes, ma'am.

DR. CHRISTMAN: Okay, and so the next question I have then is have you talked to John Walter and Skyler Sagarese about the red tide update, the incorporating the episodic events, because I think they're still working on switching over to the new satellite.

MR. RINDONE: I haven't talked with Skyler about this recently, because she's been tied up with SEDAR 49, and I'm trying not to give her any more distractions than she probably wants, but I know that they have been working on setting up the new methodology with the satellite data, but they do have data from 2014 that could be folded in for this update assessment, and so that would be something that could be considered.

If data for 2015 are simply not available or not complete or what have you, then they've at least been considered, which is all that we're asking for that bullet point under Number 2.

CHAIRMAN BARBIERI: Steven.

MR. ATRAN: Our current gag ACL was ultimately left unchanged, even though the SSC recommended an increase in ABC, and I'm trying to remember why, if that was because we had some low recruitment that we didn't know was going to persist or not or if it was because of anecdotal information from fishermen saying they weren't seeing as many fish out there, but, at any rate, do you remember what the cause was for why the ACL wasn't increased and is it something we might need to address in the terms of reference? Either that or, Leann, do you remember what

happened?

CHAIRMAN BARBIERI: Actually, we have Dr. Simmons there and able to address that question, hopefully.

DR. SIMMONS: Thank you, Mr. Chair. I believe it was based on a lot of the information we had from fishermen and the Reef Fish AP and the uncertainty in the assessment. They felt like they weren't seeing on the water the progress that the assessment essentially had said that the stock had recovered, and so I think they stated several times, in various meetings we had, and asked the council to be precautionary, and the council took a precautionary approach and we didn't change the catch levels at that time.

I think the SSC had also tried to incorporate and to discuss recent red tide events that had happened before then, and that also led the council to be more precautionary as well, because it was discussed for several meetings at the SSC level.

CHAIRMAN BARBIERI: Thank you for that clarification, Dr. Simmons. With that, any additional comments or questions? Bob Gill.

MR. GILL: Thank you, Mr. Chairman. The only other thing that I think is helpful in our evaluation is to have the equilibrium values for ABC and OFL, particularly when we get out to the far end of whatever our projections are, to try to set it in context. Sometimes they're not useful, because we don't have much faith in them, like triggerfish, but, on a normal -- I think having those values as part of the normal routine output from the assessment would be very helpful for this body.

CHAIRMAN BARBIERI: That sounds like a reasonable request. Ryan, did you -- Any other comments or questions or suggestions for Ryan? Clay.

DR. PORCH: It's more a comment to Bob's. It may come up again in the agenda item that Steve refers to as OFL versus MSY, but I just want to remind the committee that, if you don't know the spawner-recruit relationship, you cannot calculate equilibrium yields, and that is why, in something like gray triggerfish, we preferred not to show equilibrium OFL or OY or whatever, MSY and OY, because you don't know what the long-term recruitment is.

In the short term, we're just assuming that recruitment will stay the same as recent levels, but we're not willing to go out on a limb and say those recent levels will continue forever and

ever.

CHAIRMAN BARBIERI: Thank you for that, Clay. Perhaps we have those, Ryan, in the terms of reference, if possible, and then it can just be a short paragraph from the analytical team justifying their inability to come up with that metric. Ryan.

MR. RINDONE: I was just saying that we're good to go then on the gag terms of reference, if you guys are comfortable with them.

CHAIRMAN BARBIERI: And that we requested the equilibrium yield when it can be provided.

MR. RINDONE: I will add that language in there.

CHAIRMAN BARBIERI: Now we're ready to address greater amberjack.

GREATER AMBERJACK UPDATE ASSESSMENT

MR. RINDONE: Yes, sir, Mr. Chair. The greater amberjack terms of reference are a lot of the same for an update assessment. We haven't had the specific attention added to Point Number 2 for red tide for greater amberjack, but the points made under Term of Reference Number 3 that were made under gag are also made here for greater amberjack, and, if it seems to be the committee's pleasure, I will add in language about requesting equilibrium values for ABC and OFL, when possible. Other than that, are there any changes, edits, or modifications?

CHAIRMAN BARBIERI: Bob.

MR. GILL: Thank you, Mr. Chairman, and my same two comments on gag apply here equally.

CHAIRMAN BARBIERI: Thank you, and I think that Ryan was saying that yes, duly noted, and they're going to be addressed, as we discussed for gag. Any other questions or comments or suggestions for Ryan regarding the greater amberjack terms of reference? We need to have a clear statement from the committee, hopefully in the form of a motion, actually accepting the terms of reference for these two update assessments.

MR. RINDONE: As modified.

CHAIRMAN BARBIERI: As modified by the suggestions noted. Jeff.

DR. ISELY: So moved.

CHAIRMAN BARBIERI: It's so moved by Jeff Isely. Anybody willing to second this?

DR. SHIPP: I will second it.

CHAIRMAN BARBIERI: Thank you. Motion seconded by Bob Shipp. There is a motion on the board and it's seconded. It's open for discussion. Any discussion points regarding this motion? Seeing none, we will proceed with the voting process, expecting this to be unanimously approved. I will ask the committee to express, any member, to express whether you have an issue accepting these. **Any opposition to accepting this motion as presented? Seeing none, the motion passed unanimously.**

Mr. Rindone, since you are on, would you mind if we skip an item and go back to Item XV, since we are talking about SEDAR terms of reference? This is the Review of the SEDAR Assessment Schedule, if you don't mind.

REVIEW OF SEDAR ASSESSMENT SCHEDULE
REVIEW OF SEDAR SCHEDULE AS OF APRIL 2016

MR. RINDONE: Not a problem. You guys will see Item 15(a) up on the board there, and the schedule for 2016 and 2017 is locked in at this point. It's been finalized by the SEDAR Steering Committee. 2018 is also -- It's not finalized yet, but it's close it it. It will probably be finalized at the September or October meeting of the Steering Committee this year, and then 2019 is still proposed, but we'll go through 2018 and 2019, specifically, since those are the ones that are still, potentially, in flux here.

We have a benchmark assessment for gray snapper that's going to start in 2017, and it will wrap up in early 2018, based on the current timelines, and the MRIP calibration updates for the recreational indices will also -- Those updates are also expected to wrap up in late spring or early summer of 2018.

We'll be tentatively conducting our first research track assessment, pending the approval of the new method that Clay is going to discuss, for scamp, and we are doing this in tandem with the South Atlantic Council, and that's going to begin, and theoretically end, in 2018. We are also going to be doing an assessment for king mackerel, again, with the South Atlantic, since we have the mixing zone around the Keys, where the two migratory groups mingle in the wintertime.

In 2019, the council has proposed the following list of species, and staff have provided guidance on the best avenues with which to assess these species, based on both what the SSC has recommended in the past and where these stocks currently sit.

Gray triggerfish was listed as a top priority of the council, and they thought that it needed a benchmark-style assessment, and so, if the research track is approved, we will tailor that appropriately for gray triggerfish.

Cobia and Spanish mackerel need general updates. We've heard from some folks in the western Gulf about potential issues with cobia. We haven't heard as much from folks in the eastern Gulf to the same, but the South Atlantic Council is also wanting to update cobia, and they exceeded their recreational ACL last year, by I think 246 percent, for the stock, which occurs from the Florida/Georgia line north, and so they have some concerns that they would like to get ironed out.

Just for a refresher, cobia, the Gulf stock of cobia, goes from Brownsville all the way up to the Florida/Georgia line, and so, from the Dade/Monroe line north to the Florida/Georgia line, the Gulf Council apportions that portion of the ACL to be managed by the South Atlantic Council, and so that part of the stock is not thought to be in any sort of trouble though.

Spanish mackerel, because it's been a while, and yellowedge grouper and tilefish were last done as a benchmark assessment in 2011, and so it's high time that we took another look at those, and so we're suggesting that those be done as either an update or a standard caliber assessment. Then the FWC will be assessing spiny lobster. Mr. Chair.

CHAIRMAN BARBIERI: Thank you for that, Ryan. Any comments or questions from the committee regarding the proposed SEDAR schedule for Gulf assessments as currently scheduled by the SEDAR Steering Committee? Marcus.

DR. DRYMON: Thank you, Mr. Chair. Ryan, are the shark SEDARs on a different schedule, or are they a different page, or is it that there aren't any proposed in the next several years?

MR. RINDONE: Sharks are managed by the NMFS HMS Division, and those assessments are conducted concurrently with Gulf and Caribbean and South Atlantic assessments, but they're not on this schedule, because we don't dictate the scheduling of the shark assessments. HMS takes care of that, and if the committee

wants to know, I can look up which ones are upcoming.

CHAIRMAN BARBIERI: Thank you, Ryan. John Mareska.

MR. MARESKA: Ryan, in 2017, Number 1 there says MRIP calibrations and then updates, and it's got all those species listed. Are all those stocks going to be updated in 2017?

MR. RINDONE: That's the idea.

MR. MARESKA: You've got vermilion snapper there, and we just finished a standard, and you're going to do an update on king and then turn around in 2018 and do a standard? That just seems kind of overkill.

Mr. RINDONE: These are updates to the recreational indices, based on changes to the MRIP data collection system and the MRIP methodologies, and so they're not like -- Clay can probably speak better to this than I can, but they're not full-blown updates like you're used to seeing. It's just on the recreational side.

CHAIRMAN BARBIERI: Clay.

DR. PORCH: Thank you, Mr. Chair. The MRIP calibration updates are what we're calling update-lite. We're going to extract the recreational catches that were used in the last update and replace them with recalibrated catches that take into account not only the APIS adjustment, the intercept part of the survey, but also the calibration that would basically correct for the bias you might incur of having used a telephone survey versus the mail survey.

The idea then isn't to do a full update, where we have to update all the indices. It's just to try and get at the possible effect that recalibrating the recreational catches might have on the bottom line, and so the OFLs, stock status, et cetera.

We've done some preliminary work. It hasn't been released yet, and the effect wasn't especially large, and so hopefully you will see that fairly soon, but the number of assessments here really depends a lot on what the constituents want to see. If the council said, well, we're really not interested in seeing any of that and we just want to add another species to assess, then I think that would carry some weight, because, right now, I'm not hearing a big cry to do all these calibration updates, and so, again, if the council wasn't particularly interested in it, or at least not in all of them, you might be able to reduce

the number of calibration updates and simply replace it with some other species for a full update.

CHAIRMAN BARBIERI: Thank you, Clay. Mary.

DR. CHRISTMAN: Ryan, how come you have red snapper under the updates as well as a standard in the same year? Is there a need to have them twice?

MR. RINDONE: The council explicitly requested a standard assessment be done for red snapper, and that's why it's on the menu. They also explicitly requested that the calibration updates be done.

Now, as far as like why we have the species listed that we do, they were prioritized at the time, by species which were overfished and/or undergoing overfishing, which is why you see gray triggerfish, gag, and amberjack is up there. Obviously gag no longer is sitting in that same group, but -- Then red snapper. They're basically just our fab five species at the top of the list and then our next highest priority species that follow.

The Science Center had originally directed the council to come up with a list for these MRIP calibrations and for it to be eight or nine species long, in order of priority, and that they would be addressed in that order. This direction was given to the councils at the SEDAR Steering Committee, and so if it's not the wish of the committee or the councils to put so much emphasis on this, then you guys certainly need to make that clear, but we're just kind of following the direction we were given.

CHAIRMAN BARBIERI: Dr. Simmons.

DR. SIMMONS: Thank you, Mr. Chair. Kind of the next item down here on this, I did tell some council members we would bring this up when the SSC was discussing the SEDAR schedule. The folks that are in the northern Gulf are really concerned about gray triggerfish, and they really would like to see another assessment as soon as possible, is my understanding.

They feel like the recruitment is coming back, and they're seeing some evidence of that, and they want to know, basically, if there's any way, realistically, ideally, if this group thinks it would be better to have an assessment earlier than 2019 for them.

The other thing that Dr. Isely and I were talking about is if there was some other information on the larval indices that weren't used, I think, in the last assessment, if there's any way that we might recommend that the Science Center process those samples, so that they be available the next time a benchmark assessment is conducted on gray triggerfish, that could help inform the model a little bit better.

If the group was in agreement, potentially, later on, after we get done talking about the schedule, maybe, if you're in agreement, we could draft a recommendation to draft a letter to request that they look at doing that, because my understanding is that it would help inform the assessment. Thank you.

CHAIRMAN BARBIERI: Thank you, Dr. Simmons. Good suggestion there. Any other questions or comments or clarifications? Mr. Atran.

MR. ATRAN: Luiz, you would know this. We've been told that FWC is planning a hogfish update assessment in 2018. Is that correct? Should we maybe get that added on to the SEDAR schedule, because we do have other FWC assessments listed here.

CHAIRMAN BARBIERI: Yes, we can, and let me ask Ryan that we actually discuss, if you don't mind, Ryan, just to remind me that we can discuss this at the next SEDAR Steering Committee meeting.

MR. RINDONE: We can do that.

CHAIRMAN BARBIERI: Thank you. Director Gregory, do you --

MR. GREGORY: I was just commenting on some conclusions the last time you went to a Steering Committee meeting. We will be glad to have you back this September.

CHAIRMAN BARBIERI: If there are no other comments or questions or suggestions from the committee, Ryan, do we need to provide you with a motion? No? It's just a thumbs-up, basically, from the committee that we can express in our report that we are in agreement with the schedule as provided, given some suggestions and additional notes, as discussed. Steven, I think that completes then Item XV and we can move on to Item XIV, Review of Research and Operational Cycles for SEDAR Stock Assessments. Clay, you have a presentation for us?

DR. PORCH: Yes.

MR. ATRAN: Just for the SSC members' information, Clay provided an updated version of this presentation during lunchtime, and it has been uploaded to the server. It's on there as Item 14(b) revised.

REVIEW OF RESEARCH AND OPERATIONAL CYCLES FOR SEDAR STOCK ASSESSMENTS

DR. PORCH: It's a minor update, and so if you don't have time to upload it, then no worries. That's not the updated one.

CHAIRMAN BARBIERI: While we get the right presentation there, let me read from our scope of work, to help frame the nature of this discussion. Science Center staff will provide the overview of the research track and operational track assessment process for SEDAR, which will replace the current benchmark, standard, and update assessment process. This new process has been proposed as a more flexible and sustainable way of assessing fish stocks. This presentation is primarily informational, but SSC members may comment and provide suggestions on the new process.

DR. PORCH: As many of you know, we've been talking for a long time about how we can increase throughput through the SEDAR process, and the basic struggle that we have is we're trying to simultaneously satisfy three goals. We want a very transparent process, we want a thorough process that turns over every stone, and, at the same time, we want it to be timely, and you really can't achieve all three things.

SEDAR is probably about as transparent as it gets. I think it's the most transparent process in the country. It's certainly one of the more thorough. It's also probably the slowest in the country, and so we're going to focus here on how can we make this a little more timely?

I want to frame it remembering that the Southeast Fisheries Science Center, in particular, serves three councils, the Caribbean, Gulf of Mexico, South Atlantic Council, and Highly Migratory Species and Headquarters for sharks, and ICCAT, the International Commission for the Conservation of Atlantic Tuna, and so we're divided pretty thin.

Yet, we have more species and FMPs than any other region, with about 300. A lot of them are in the Caribbean. A lot of them are resources where we only have some information on catch, and so we won't be able to do full assessments, but you will see there that I think it's about fifty-one species that we've

actually conducted and had assessments accepted for, but there is another fifty-some-odd that possibly could be assessed at some level.

The problem is how are we going to get to that, given the resources that we have now? I did a little math here, which I can't see from here, and so I will try and remember it, but the bottom line is, in terms of assessment leads, we have about twenty scattered throughout the Southeast to serve the five management bodies that serve as our constituents.

You figure there's about 107 stocks that could be assessed, if we were assessing all of them, and, if you divide the 107 by twenty and you assume, at the current maximum rate, we can do about one per year, that's an average of updates and benchmark assessments, your refresh rate is going to be about once every five years, which is not very impressive.

On top of that, the reality is that we're not doing an assessment per assessment lead each year, because we have a bottleneck in our data provision, and particularly in the fishery-dependent data, both in terms of processing otoliths and simply processing the recreational and commercial catches.

Because of that bottleneck, we're actually probably doing about 0.75 assessments per person year. What that translates to, if we were to assess all these species, would be a refresh rate of about once every seven years, and so a difficult situation we find ourselves in.

The answer here is not going to be completely just revamping SEDAR. Obviously we need some additional resources if we want ever want to really reduce the assessment frequency and assess more species, but I think we can make a dent in it by revising the SEDAR process a little bit.

You will recall the existing process of a benchmark assessment is a three-workshop process, a data workshop, assessment workshop, and a review workshop. It typically takes between nine months of a year, and it's intended to be an extremely thorough and also very slow process, very thorough, very transparent, and slow.

We have a second option, which is a standard assessment. Usually there is one workshop that's sort of a combined assessment and data workshop and, instead of having a review panel, an independent review panel, review the assessment, the SSC reviews the results. The standard tries to follow pretty

much all the protocols that were laid out in a previous benchmark assessment. The difference is that you may want to make a little tweak, because you got a new data series in or you found some better way to model some process, some new information.

If the SSC is comfortable with it, they will write it in the terms of reference, and we may or may not hold an assessment workshop. It depends on how important or how big of an issue you think it is that needs to be addressed. If it's a relatively minor change, but maybe more than an update, we might just do it with a webinar. If it's a rather large change, where we really want people to take time to look at that change, then it would be a workshop. It's faster than a benchmark, but not necessarily fast.

Then there's the update. An update is basically we take more or less exactly what was done in the previous benchmark and add years of information. We might make a minor tweak if the SSC is comfortable with it, but, pretty much, it's just a strict, like it sounds, update of what's in the benchmark. That is much faster. Usually that's three to four months for us.

The problem with the benchmark, and now I'm going to actually -- I don't think I can enlarge this any, but -- I'm almost going to have to walk up there so I can see the screen. That's what happens when you get that eye surgery and it doesn't quite work. 20/40 doesn't quite read that screen.

The problem we have with the benchmark is that the data providers have difficulty meeting deadlines, and this is partly because -- Consider, for example, stock structure. We go into a benchmark assessment with a certain idea of what the stock structure would be, we tell the data providers how to prepare the data, so that we can plug it in our stock assessment model, and then, in the life history group, some information is presented and we go, wait a minute, we need to use a different stock structure.

Maybe, before, we had the dividing line at the Mississippi River or something and then someone tells us that no, the evidence is that it should be Cape San Blas or something like that. Then we have to tell the data providers to go recalculate everything, and that becomes quite a bit of work for them.

It could also be fleet structure. We have elected to have two fleets in the model, and then, when we really look into it, we realize these fleets are so different that we need to model them

separately, and that requires more work on the part of the data providers. All of that then multiplies the work they have to do, which means they can't serve as many assessments as once.

Of course, the results are often criticized by the reviewers, but, because we have to produce management advice in a timely fashion, with usually a fairly strict deadline, we don't have time to accommodate everything the reviewers might suggest. We do what we can, but the bottom line is we've got to give advice so the council can make rules. As a result, we're pushing deadlines a lot of times. Often we're missing deadlines.

Then, finally, just the word "benchmark" itself implies, to a lot of people, the best, and they all want benchmarks, and the council asks for benchmarks all the time, when in fact the model is the same. It's the same components, but it's just that it's a much more lengthy process, because we have to go through all the three workshops and it's more detailed reporting and more work for our data providers.

The thing with a standard is it's reasonably fast, but it's sometimes criticized by stakeholders, because they think a benchmark is better. It's just sort of that mindset that people are getting into.

An update is really fast, but, again, it's often criticized by stakeholders, because they think "update", and, again, they think a benchmark is better. Really, it's the same thing. It's just that updates are just adding more years of data, but it's the exact same model.

We thought a lot of about how can we get past this sort of vicious circle and maybe make some improvements that actually would increase throughput, and the model that we came up with, and by we, I mean this is really collaborative effort. It's myself, other stock assessment scientists, like Erik Williams, John Carmichael, and Rick Methot, who is our Chief Scientist at the National Marine Fisheries Service.

We were looking a lot at what's done in other places in the country, and one of the ones that seems to work pretty well is the model that's used in the Northwest, where they have a research cycle, where they're not actually generating management advice, but it kind of runs in the background. It's analogous, more or less, to what we call a benchmark assessment, except you're not actually trying to produce management advice. You're just trying to get the science right.

Then they have their operational assessments. Once you get that research cycle, that research track, approved and you get the independent reviews, now you have a system in place, an assessment system in place, that you will start populating with the most recent data and provide management advice, and so that's what we're more or less trying to achieve here.

The research cycle, to summarize how we think of it, is it's designed to test and document and review the assessment approach. In that way, it's a lot like a benchmark now. You might have one or two workshops. It's going to depend on the complexity of the problem and who wants to get involved.

We would still have the IPT-style communication for the assessment panelists, so that they can communicate at will, and it's something that we've already adopted in our SEDAR benchmark process.

We would still have a review panel meeting with independent external experts, and the findings would be thoroughly document, as now, in an assessment report. Possibly it would be more aggressive in trying to publish them as NOAA tech memos or, if it warranted it, actual peer review publications.

Unresolved issues and ideas, as they are now, would just be catalogued in terms of recommendations, and then we might address those at the next research cycle. The bottom line is it's not intended to produce assessment results for immediate advice to managers, but, once it's vetted, then it's going to be operationalized.

The operational assessments, the main goal here is to produce timely advice to management, and so it's conducted by designed analysts using a suite of previously reviewed procedures and datasets, and it would be in consultation with an advisory body, and so it would be much like an assessment panel today that's appointed by the council.

There would be usually very minor changes to the vetted approach from the previous research cycle, and those would have to be things that the SSC felt competent to review, and they would be put in the terms of reference, like you just developed.

The findings would be documented much more succinctly than they typically are now, because we could refer to the complete documentation from the research cycle, and then we would just write an executive summary that would be distributed to the council, so they don't have to wade through pages and pages and

pages of an update or a benchmark assessment report. Then, again, as we find the anomalies or concerns, we document those as research recommendations to be taken up at the next research cycle.

What are the advantages of the new approach? A big one is that the analysts now aren't going to be -- For research cycle, they're not going to be under the pressure of producing results by a certain deadline. They can focus on addressing the real problems.

As I mentioned before, what happens now is, during a benchmark assessment, whether it's consultants or fishermen or other stakeholders, they can come with a real observation that we would really like to account for. It may take some time, both in terms of developing appropriate model structure or collecting new data to really examine whatever the issue is, but we can't do it, because we have to produce the management advice at the end of the nine-month procedure.

This would give us -- By not having a hard deadline in all the research cycles, it would give us more of an option to really thoroughly address some of the issues that are brought up. It also makes it easier to incorporate suggestions from reviewers after we have the review panel meeting, because, again, we're not constrained to produce management advice right after the review panel. We have some time to actually look at it.

Also, a big one is the data providers aren't under pressure to provide the latest dataset that accounts for all the changes we made during the benchmark process. This takes a lot of pressure of our data providers, so that they can focus on what would now be called operational assessments, where the parameters are always set well ahead of time for what fleets would be used, what's the stock structure, how to set the data, so they can plan ahead, which will make this a lot more efficient. Right now, that is, by far, the biggest bottleneck, is the data provision.

It would also result in more opportunities for quality scientific research that will advance the state of the art and address a lot of the questions that are brought up by groups like this.

Now, during the operational assessments, we're going to have the benefit of standardized, preapproved approaches that -- By having that, you're going to have reduced implementation errors, because you're not changing things on the fly all the time,

which always make it possible to make a mistake.

We've already decided on the assessment methods well ahead of time, so people have plenty of time to brush up on exactly what was being used and make sure they fully understand the approach. It gives us more opportunity to standardize, in general.

The assessments will be more reproducible, and so if somebody else wanted to duplicate the work they've done, it would be easier for them to do it, and, again, data providers, because they know what's going on ahead of time, will be able to produce inputs more quickly, and it's not just the federal people that I'm talking about. We get a lot of data from the states, and it would help the states if they knew exactly what they were going to be requested well in advance.

I also want to mention that there will be emphasis placed on succinct communication of management advice and plain language. That's something we're going to work hard on for these operational assessments.

How is it going to work? We developed sort of a hypothetical example of two years in a SEDAR cycle with five lead assessment analysts and anticipating the current level of support we get from data providers, and, when we actually looked at how long it takes for the data providers to give us the information we need for an assessment, we came up with, after two years, there would be probably three research track assessments and about ten operational assessments.

The long-term average, with five analysts, would be one to two research track assessments per year and four to six operational assessments per year, which is a substantial increase over what we're doing now.

If we wanted to increase on that further, I don't think we're going to do it by retooling SEDAR. We're going to have to get more people power, but, still, this would be a substantial increase over what we're doing now for both the South Atlantic and Gulf of Mexico Fishery Management Councils, and this is just a hypothetical timeline down at the bottom. That's it, in a nutshell. Does anybody have any questions?

I do want to emphasize one thing, and that is that the research cycles are almost, in effect, being conducted in the background, because the data providers can give us data that's older. The main thing is we're trying to get methods down. We're not trying to have the most recent data. It will require some

effort on their part, but, in effect, it's as though it's being run in the background, as opposed to a benchmark now, where the data providers are right in the forefront.

CHAIRMAN BARBIERI: Thank you, Clay. Bob Gill.

MR. GILL: Thank you, Mr. Chairman, and thank you, Clay. That was informative. Where is this in the approval process? Is it now winding its way through and the SEDAR Steering Committee will approve it in October or what's the timeline for making this whole process operational?

DR. PORCH: The next steering committee meeting, I guess, is late September or early October. I don't think the date has been set, but, if the council supported this, it would obviously go -- It would help it get approved in the SEDAR Steering Committee. It hasn't been formally approved. People expressed that they liked the idea. John Carmichael supports it, but if the council reps also support it, it would have a better chance of actually getting a yes vote.

MR. GILL: So you're taking it through all three councils and looking for their thumbs-up to take to the steering committee in September or October? Is that the thinking?

DR. PORCH: At least the South Atlantic and the Gulf. The South Atlantic has already seen the -- Their SSC just saw this presentation, almost the same presentation, and so now I am showing it to you. We'll bring it forward to the councils. Hopefully the SSCs will support it, and that will carry some weight with the councils. Hopefully they're attracted to the idea, because I think we will get more assessments out. It's not going to double it, but it will give us more assessments, and I think it will be a more satisfying process overall. Again, John Carmichael has supported the idea.

CHAIRMAN BARBIERI: I have Jim and then Steven.

DR. TOLAN: Thank you, Mr. Chairman. Clay, thanks a lot for this presentation. Just looking over the theoretical timeline and the operational side of each one of the schedules for about three months, is that a realistic number? That seems pretty quick.

DR. PORCH: If it's constructed the way we plan. You conducted the research cycle a year or two earlier and everything is laid out, the data providers know exactly what they need, the model is already set up from the research cycle, and so it shouldn't

take more than three months to do an update.

Some of them may end up taking six months. That's why we say four to six -- Well, four to six operational assessments per year for a group of five seems reasonable, and some years it might be four and some it might be six, depending on what's involved in the update, but, generally -- I keep saying update, but I mean the operational assessment. Generally, it really should take about three months, assuming all the parameters are set like they're supposed to be.

CHAIRMAN BARBIERI: I have Steven and then Ben and then Mary.

MR. ATRAN: I was just wondering, looking at the description of the research cycle, is there going to be any equivalent of a data workshop, in order to gather, from whatever sources, new information?

DR. PORCH: I think it's flexible, but, to me, for something like this, the data workshop is probably the most important, because your assessment is tailored, largely, to what data is available, and that's also one of our best opportunities to work with stakeholders, in particular fishermen, and so I would anticipate that yes, we would have data workshops and probably also an assessment workshop. It depends on the species or species group. That's another point I should have made, is a research track can be for a complex, too. It doesn't have to be species-specific.

CHAIRMAN BARBIERI: I have Ben and then Mary.

DR. BLOUNT: Thank you, Mr. Chairman. Thanks, Clay. That was really very informative. About the data workshop, will the new system obviate the need for webinars?

DR. PORCH: No one likes those webinars. I think it depends. Webinars are convenient when you have this IPT-style communication, where you have an assessment panel and we're all talking among ourselves freely and we come at some decisions. It's important to have, at some point, some public comment period, when the public can see what decisions have been made, and, those, you have to put in the Federal Register, whereas the IPT-style communication, you don't. At some point, there probably would be a webinar. In other cases, it might be a workshop.

DR. CHRISTMAN: Clay, thank you. How often would a species go through the research cycle?

DR. PORCH: Ideally, as little as possible, but I say that a little tongue-in-cheek, because it really depends on what new information comes to light. If there is no new information, then there is probably not much reason to have another research cycle for the same species.

By no new information, I mean nothing substantially new. If it was a minor new index, you, arguably, don't even need a research track. If it's just somebody did a survey in one particular area, you could even review that separately. It doesn't even have to be part of a research cycle.

DR. CHRISTMAN: I was thinking more like if there were new stock assessment model approaches that use different inputs or there was new data coming out, because of the huge amount of money that's flooding, due to the BP oil spill and that sort of thing. That's what I was thinking about.

DR. PORCH: Yes, and, in that case, I think if you have a fundamental change in the quality of information that's available or completely -- Even the quantity of information, then it might merit a research track cycle. I don't want to be too prescriptive here, because it really would depend on -- If it's, like I said, just say somebody did a survey on a group of reefs and it was fairly representative, then you could arguably have a separate workshop that just reviews those results.

Then it's a pretty simple matter to plug it into most assessment models. It's just another index, and so you don't necessarily have to have a research cycle, but let's say it was multiple indices or there was something peculiar about it that affected only a couple of different species. Then you might want to wrap it up in a research track cycle, but I don't want to be too prescriptive here. I think that's going to have to be a case-by-case basis, and it's going to depend a lot on what the SSC thinks they can review apart from say an independent peer review.

CHAIRMAN BARBIERI: Okay. I have Steven and then John Mareska.

MR. ATRAN: Where does the SSC fit into this new procedure?

DR. PORCH: The same place they fit now. I mean, ultimately, if you're giving management advice, you're going to look at the operational assessments and do just like you did here with vermilion snapper. They only difference is, when you're doing a research cycle, there's nothing, necessarily, for you to review.

There is not management advice coming out of it.

The SSC might have members participating as part of the assessment panel, like they do now in a benchmark, but there wouldn't be management results that are coming before you from a research cycle. That is going to wait until the operational assessment.

MR. ATRAN: For the research cycle, would there be like a certain number of SSC members solicited to serve on that cycle and, for the operational assessment, a certain number of SSC members solicited for that cycle? That's pretty much the way it works now.

DR. PORCH: Yes, I think that would be pretty much the same. With the benchmark assessment, we have an assessment panel, and that includes members from the SSC and others designated by the council, and so I think that would be the same. You can call it assessment panel or advisory body or whatever you want, but it would function much the same.

CHAIRMAN BARBIERI: I have John Mareska and the Director Gregory.

MR. MARESKA: I just would like to say that I'm in favor of trying this new method, but to, I guess, kind of touch on what Jim was talking about, the timelines, from my experience, even the old standard, which would now be operational, your hypothetical had timelines, and that gives me concern, because my experience has been, even with the standard, those assessments seem rushed.

There's not enough time to address things that pop up, things you don't anticipate, such as updating the vermilion and that fecundity stuff. That was a significant change for fecundity, but we had no idea how it was actually going to impact the assessment, and to reiterate what you had said, this plan is only going to work if you get more people.

That's something I see over and over again, whether it's a data workshop or a standard assessment. There is not enough people to get all the information, so that it's there in a timely fashion, and so that really has to be addressed.

DR. PORCH: With regards to something like this, where it seems like a standard is rushed, that, I would say, is a case of does the SSC feel like they will have sufficient opportunity to review everything that's done and they're comfortable with the

changes that they're making, that it's within their realm of expertise and that they don't need independent experts.

If the answer to that was no, then you need to go to a research track assessment, because now you're talking about major changes that the SSC is not comfortable reviewing by itself and it would rather have that independent review.

To the second point, what I'm actually saying is this research/operational cycle would make us -- It would be more efficient than the current SEDAR process, and it would result in a few more assessments per year across the Center. Right now, we're doing at a clip of about three-quarters of an assessment per lead per year, because the bottleneck is not the assessment leads.

We're trying to figure out a way to make the process more efficient, so our data providers can serve us more assessments. By doing this, we think we've hit on it. We've done the math, and, basically, I think we can get it up close to the equivalent of one per assessment lead, and so it's going to result in several more assessments per year, but it's not going to double the number of assessments.

If we wanted to shoot for doubling, then, yes, we would need more capacity, in particular with regards to the data processors, and that's not only at the federal level, but, in some cases, it's at state levels.

CHAIRMAN BARBIERI: Thank you, Clay. Director Gregory.

MR. GREGORY: Thank you. Dr. Porch, you said something earlier that the research cycle would end with the independent peer review. Currently, benchmark assessments are reviewed by the SSC after the independent peer review, and I would think we would want the SSC to do the same with the research cycles.

Let's just take a hypothetical king mackerel situation. We get data from Mexico that says we've got a western stock and we've got an eastern stock and we've got to do the stock assessment differently. I mean that sort of information, it seems to me, should come through the SSC for discussion before it gets put into the operational system as a fact. I would hate to see the SSC bypassed in any of that, and so that's my main concern with that.

DR. PORCH: First, I would be open to that. That's not a game-changing change for me. If you wanted to have a review workshop

and then have the SSC take a look at it after that, that would be okay, but I would submit to you that it's not really that different from -- What I'm proposing here isn't that different from what's being done now, because the management advice would not come from the research track.

It would be operationalized at the next wherever it is on the slot, and so the SSC is still reviewing it the first time it's actually been used for management advice. There is just a delay while it's all being operationalized. Do you follow what I mean?

Right now, the benchmark, you have what amounts to a shortened research cycle and then you give management advice. The way we would be doing it, in this approach, is a longer research cycle and then we operationalize it and then you review it. Right now, the benchmark kind of combines the research cycle with an operationalizing cycle. Does that make sense? It's just that it's compressed, but you would get the same number of reviews from the SSC.

MR. GREGORY: Yes, it makes sense, but I just want to caution that we use -- The Gulf Council uses the SSC to review all scientific information for them and not just management advice. It's a red flag for me, because it seems like since we've gotten into this ACL era that the emphasis seems to be that the SSC gives the ABC and that's their job, but the job of the SSC goes beyond that.

It's not just the management advice, but it's to tell the council that we think this advice you're getting from these people, whoever they are, is the best scientific advice that we're aware of, and that's what the council relies on. I would like to see the same with the research cycle.

If there's a change in the stock structure, that's the time to discuss it with the SSC and not after it's been accepted by the Center and then put into an operational plan, where it would come to the SSC and say, well, this is what the research cycle has concluded and we're stuck with it and this is the way it is. I think the SSC needs to be in the middle of that, and so that's the only thing, because they do more than just management advice.

DR. PORCH: Fair enough. I guess what I'm saying is that they would actually be reviewing it, under the proposed system, just as much. It's just there is a delay, because, right, now the benchmark is research track and then operationalizing it and

then the SSC reviews it anyway, and so there would be actually just more time, because it would be research track and then a gap of time and then whenever it's scheduled to be operationalized.

You would end up the same frequency of reviewing it. However, having said that, if we tweak this -- Let me put it this way. If it would make an easier sell, I would be happy to tweak it so the SSC gets to review the research track cycle after the independent peer review, but, before it's operationalized, it's basically sending somebody to an SSC meeting and presenting it, much like Matt just presented something.

MR. GREGORY: That's exactly what I'm asking. Part of the frustration that we've had, at least when I was on the SSC, was trying to deal with an update where you're so constricted because this is what the last benchmark said. Therefore, you're limited to what you can do with this, and I would be worried that we would have the same kind of restrictions from a research cycle that didn't get adequate review by the SSC and that we would be locked into something that may not make sense to us or make sense to the SSC. If they can review the research cycle, then that should help minimize that kind of conflict.

CHAIRMAN BARBIERI: I think message taken that that's a recommendation. Mary.

DR. CHRISTMAN: I just wanted to point out that in 14(a), the document that Clay provided supporting the presentation, it actually has Step 4, Action, CIE and SSC Review and Comment. That's during the research cycle, and so he was planning on it, or at least he was thinking of it at the time he wrote that, or whoever it was that wrote it.

CHAIRMAN BARBIERI: Thank you for that, Mary. Thank you for coming, Clay, and giving this overview and addressing a number of questions. I think you got a lot of good questions and recommendations from the committee. It gives you an idea. My impression is that the committee is really responding very positively to this. I mean they have some suggestions and perhaps recommendations for improvement, but, in general, I think the committee is very much in line with this, which is pretty much what happened at the South Atlantic as well. Bob.

MR. GILL: Thank you, Mr. Chairman. To that point, do you want a motion to that effect?

CHAIRMAN BARBIERI: Since this item is informational, I don't

think we need to. I think it will just make things a little easier and faster, and it will be included in our report, both the written report as well as the presentation to the council, but I don't think -- It's not an action item. Doug.

MR. GREGORY: No, the council explicitly wanted the SSC's input on whether it should endorse this approach or not. I mean this approach scares a number of people on the council and council staff, that we're frustrated that we're not getting enough assessments now and that we might get less assessments.

Our concerns are somewhat alleviated by the discussion of the research cycle will be done in the background. How that plays out is really what's important, but there is a lot of concern on the council about the frequency of stock assessments we're getting now and what we might get under a new approach, and so a definitive recommendation from the SSC is very important.

CHAIRMAN BARBIERI: I completely agree. If you think that this should be in the form of a motion, to make it clear, we can do that. Would that be easier? Having heard that, Mr. Gill.

MR. GILL: Thank you, Mr. Chairman. I will make an attempt at it. **The committee recommends approval of the proposed research/operational assessment structure.**

SSC MEMBER: Who are recommending that to, the council or ourselves?

MR. GILL: All of our motions go to the council.

CHAIRMAN BARBIERI: Yes. Bob Shipp.

DR. SHIPP: You know I tend to approve it, but I am concerned. It seems, to me, that this is -- It just came up on us pretty rapidly. We haven't had a lot of time to think about it, and, as Doug pointed out, there is concern. I want to approve it, but I just think this is kind of premature to do it at this point.

CHAIRMAN BARBIERI: Mary.

DR. CHRISTMAN: Actually, before I would vote to approve it, I do have a question about implementation, because if you only have limited resources and we have to provide these stock assessments, how are we going to implement this and maintain the schedule of stock assessments? How do you see that playing out? I'm trying to get a sense of is this disruptive or can it start

in the background? How would it work?

DR. PORCH: Right now, it's a very inefficient process for our data providers, because, during a benchmark, which we do a lot of benchmarks, some of the parameters change, in terms of fleet definitions and how we're combining data across fleets, stock structure, et cetera. It ends up chewing a lot of the data providers, because they end up calculating things two or three times.

For a research track, they just give us the data as it is. It can be a year outdated. It doesn't matter. It's concept that matters. You're not trying to get the most recent data, and so then they can focus on the operational tracks, where, in this case, you already know exactly the fleet definitions. It's not going to change. You know the stock structure. You compute the data one time and then they move on to the next operational assessment. This mostly addresses the bottleneck we have with data provision.

CHAIRMAN BARBIERI: Jeff just reminded me, correctly, that this motion hasn't even had a second yet, and we're already into discussion.

DR. CHRISTMAN: I second.

CHAIRMAN BARBIERI: Thank you, Mary. Discussion now?

DR. CHRISTMAN: My question was I'm trying to imagine, if we were to shift over to this new approach, this new modeling approach, how do you see that happening and still providing the SSC and the councils with the stock assessments they need now? That's what I was asking.

DR. PORCH: Most of the stocks that are being assessed now have had fairly benchmarks fairly recently, and so operationalizing them is the same as conducting an update, or maybe, in some cases, a standard, if there's something -- An operational assessment would be either the equivalent of a standard and update, depending on what the SSC thinks needs to be added to the assessment and what they feel comfortable to review, and so I see it as a fairly seamless transition.

CHAIRMAN BARBIERI: Do you have a clarification, Ryan?

MR. RINDONE: Kind of a question that will hopefully clarify something. For when we're looking at the SEDAR schedule and we're talking to the council about these things in the future,

we'll just say that something that is expected to be of a standard or update caliber, in the back of our minds, it will just be characterized as an operational assessment. If the council sees that, they will -- At least, through this process, they will learn what latitude is being provided to the analytical team and about what they should expect as far as timelines.

Now, I guess a follow-up to the -- I take your nodding as yes, but a follow-up to that. When we're talking about these timelines and deliverables and the council is trying to figure out when they're going to get these things, do we need to be changing our current way of forecasting when we want stuff to be completed or -- Because there's obviously being advertised quite the bit of capability to churn out a lot of assessments in say a two-year period, and, of course, needs can change during that time and how much would the councils need to, say, interject a gray triggerfish assessment maybe a year or two ahead of schedule, and how much is that going to throw a wrench into the mix?

DR. PORCH: Obviously it depends on the species we're talking about. If you're talking about red snapper, the further ahead you can get us, the better, because there are so many pieces of information that we need to update, I mean dozens of time series that need to be updated.

For other species, it may not be quite as much work, but, in general, you want at least a year's notice, if not two, because we have to get the machinery in place to reading otoliths and processing, whether it's processing reproductive samples or -- At least in an operational assessment, you do need to read more otoliths to update that part of the time series and updating catch per unit effort, fishery-independent and dependent indices of abundance, et cetera. Again, I don't see that part of the equation changing, and so you want to plan at least a couple of years ahead.

CHAIRMAN BARBIERI: Clay, I perhaps misunderstood how this process is taking place. I mean I thought that this was basically you coming as an informational item to the SSC and we provide some -- But this is not completed yet. I mean even the structure of how all the details are going to be worked out is not done yet or --

DR. PORCH: Right, it's going to be discussed and hopefully adopted at the upcoming steering committee meeting, but we didn't unilaterally impose this. We're coming to the councils

to get your views on the matter, and maybe you have some suggestions, like Doug did, that we take the research cycle assessments to the SSC immediately following the review panel, so we can get their input. Basically, we want to get input from the councils and their SSCs and then tweak the procedures so that people are happy with it.

CHAIRMAN BARBIERI: Yes, and I'm saying this because I mean when we send a motion to the council recommending approval, I wonder if it's still a little early in the process for us to do this.

MR. GREGORY: If I may, Luiz. If you look at the SEDAR schedule that Ryan presented, there is a scamp research cycle already listed for 2018. Even before we've got the full approval of all the councils, the Center is going forward with planning them, and so it's not too early.

CHAIRMAN BARBIERI: My question then to the SEDAR Steering Committee, and I know that Bonnie is the Chair, but will there be a document -- Right now, there is a type of a SOPPs document that SEDAR adopts which codifies a lot of these processes, all the procedures, in writing. I mean I would be concerned, the same that when I review a stock assessment that I ask not to have just a PowerPoint presentation, but I want to review the document in front of me.

I mean my interpretation of this is that, basically, to provide some input and get some suggestions and go back and reiterate, but that, eventually, we will be given the opportunity for a more formal review. I have Kai and then Jeff.

DR. LORENZEN: Thank you, Mr. Chairman. I like the idea, and I trust Clay's assessment that it would improve efficiency, but it also has a lot of open questions, for me, at the moment about exactly how they would be implemented and how those reviews would work and how much latitude there would be and so on.

I am thinking maybe we can do something in between and essentially do a pilot test of this process, with maybe one research track or two research track assessments and some operational, and see how that works in practice before we just jump into it and say yes, that's what we do.

CHAIRMAN BARBIERI: Jeff.

DR. ISELY: I guess I would offer a friendly amendment to help soften this and change "approve" to "favorably consider".

MR. RINDONE: How about “endorse”?

DR. ISELY: I’m trying to give them them opportunity to get more detail, rather than approve what’s been presented to us. That was my point. If somebody can come up with a better wording than that, then --

CHAIRMAN BARBIERI: Are you done, Jeff?

DR. ISELY: Yes.

CHAIRMAN BARBIERI: Okay. Bob.

MR. GILL: The one thought I had relative to that is, after “structure”, insert the word “concept”, so that the details aren’t known, et cetera, but, in general, the idea and the concept that Clay has provided appears to be acceptable, details to be determined, and so if that would help. It would be “assessment structure concept”. That would be my suggestion, Mr. Chairman.

CHAIRMAN BARBIERI: Who seconded this? Mary did. Are you okay with that?

DR. CHRISTMAN: Yes.

CHAIRMAN BARBIERI: Ryan and Doug, I am not trying to steer away from making a decision, but it’s just that, to give this a complete thumbs-up or thumbs-down, are we ready for that? Ryan.

MR. RINDONE: I think, ultimately, the SEDAR Steering Committee is going to want to have SOPPs in place, similar to what exist for the benchmark/standard/update paradigm that we operate under now, before there is like a final, hard approval.

I can’t imagine that that written language as to how exactly everything is going to go is going to be put through without any sort of consideration by the cooperators, which are the councils and the commissions. Endorsing the structure or the concept or whatever verbiage you guys want to use is very appropriate at this stage, and, as far as any concerns about if it’s going to get ahead of us and it’s going to be implemented before you guys have a chance to see that, because of what’s on the schedule right now for scamp, if, for whatever reason, the cooperators for SEDAR decide to go a different direction, then scamp just becomes a benchmark.

Clay is right that there’s been a whole lot more buy-in in the

last several months for this new process as more information has been made available about how it's actually going to operate. The explanations are much improved, but you guys have definitely not seen the last of it. When that formal SOPPs language comes out, you're likely to see it.

CHAIRMAN BARBIERI: Thank you for that clarification, Ryan. Marcus.

DR. DRYMON: Thank you, Mr. Chair. I would just like to say that I've seen this presentation, or a similar version, a few times now, and, thinking about it, and especially just thinking about it today, it doesn't seem, to me, to be too much different than what's already in place.

I would say, to me, it's just kind of a rebranding of some of the same stages, with the major difference being the benchmark isn't under the same pressure to be used right away, that it has this period to become operationalized, and so I think it's a really good change. I think we could all agree that SEDAR moves pretty slow, and this seems like a very reasonable series of changes to make it move faster, to me.

CHAIRMAN BARBIERI: Thank you, Marcus. Any other comments? David.

DR. GRIFFITH: I just would have trouble -- I mean I don't mind this idea of supporting the concept, but to endorse the whole process right now, especially because Mr. Gregory said that there were some reservations about this that we don't know about, we would have to have, I think, a lot more information about how people had problems with this approach, although it sounds like a very good approach, to me, and it sounds very workable and much more efficient, but I would like to know if you know how stakeholders are going to respond to this calling it something different, calling it an assessment instead of a benchmark or a research cycle, and how they're going to respond to these new terms. I just think we need more information before we endorse the whole thing, but endorsing the concept, I think, is a good idea.

CHAIRMAN BARBIERI: I have John and then Steven.

MR. MARESKA: I definitely think this is going to improve things, and maybe the holdup on some people's part is the concept that a benchmark is better, and if you remove the benchmarks, then you have removed that better assessment, but, from a scientific standpoint, I don't see a big difference in

the updates, the standards, and the benchmarks when we're sitting here reviewing all of that information. If an assessment is an assessment, it's all equal, I think they will be able to turn them out a whole lot faster.

CHAIRMAN BARBIERI: Before your comments or questions, Steven, you know this is why I don't think that we are at the stage of making motions to give this a thumbs-up or thumbs-down. I mean I think, at this point, they are presenting a concept to us and asking for feedback, and I can tell you that the South Atlantic SSC responded positively, but provided about eight to ten different bullets in our report that made some of these points. We wrote down some of these recommendations to the Center, basically, and the council on issues that the committee had concerns about and suggestions for improvement.

My impression is that we were at the stage that we can use our report to basically, in a non-decisional sort of non-action-item topic like this, provide some more explicit recommendations, instead of going through a thumbs-up or thumbs-down motion process. Yes, Steven.

MR. ATRAN: You just about said what I was going to suggest. The idea that you approve the concept, as opposed to the proposal, is kind of an ambiguous difference. When I am reading this, the motion sounds like, hey, you're all for this, but the discussion is that you have some concerns, and so I was going to suggest that -- In the document, I was going to try to write down some of those concerns, based upon my notes. You said that the South Atlantic SSC actually had a bulleted list. I was going to say maybe that you support continued development of the process, but you have certain concerns, or something along those lines.

DR. LORENZEN: Coming back to the idea of having basically a pilot implementation followed by some review maybe by the committee, but the question is, Clay, from your perspective, would that complicate things or would that be a natural thing to do?

DR. PORCH: Really, I think it's a fairly smooth transition, and so a pilot approach -- I mean it would be okay, but it just is going to delay the rate at which we can improve throughput, because basically, if your pilot is one species, that's one out of the fifty or so that we assess, and so that's my only concern there, but my biggest fear is that we languish in indecision, because some people are afraid that there is some subtlety in here that will slow things down rather than speed things up.

I mean I don't see how that could happen, but there may be some people that are worried about it, either because they didn't see the full presentation and they just heard about it or maybe they have some specific reservations, and if they have -- If someone on this committee has specific reservations, I would like to see them. That would be very helpful.

What Luiz and Steven were referring to, having a bulleted list of things you're concerned about, would be very helpful, because that gives us something to address in time for the SEDAR Steering Committee meeting.

CHAIRMAN BARBIERI: Yes, John.

MR. MARESKA: I guess I've got a question for Clay. It's my perception that this research framework will allow them to make sure that the model and the assessment is appropriate, so that we don't get to the point where we review it and we say it's the best available science, but not suitable for management. I'm hoping it will remove that scenario.

DR. PORCH: That's certainly one of the precepts behind this approach, in that, right now, a benchmark is constrained. It has a hard ending point, because people are waiting to make management recommendations.

We can only consider so many changes before we run out of time, and this happens all the time. We saw it with king mackerel and we've seen it routinely with red snapper and a number of other species, whether either new information comes to light or some important potential structural change, and we just don't have time to do it and so we say next time, and then we have another benchmark.

Whereas, if weren't constrained to provide management advice next month, then we could just say, okay, this is important and we've got to look at it and we'll extend the research cycle a little bit.

CHAIRMAN BARBIERI: Yes, Jeff.

DR. ISELY: From an assessment scientist's point of view, I'm really in favor of this approach. Specifically, for gray trigger, there were a number of stock structures that I wanted to investigate, data structures, and they just weren't permitted under the current system.

The other problem is that we don't have just have a hard ending with a benchmark, but we have a hard beginning. There is no advantage in starting an assessment early, because you have no idea what the data are going to look like until after the data workshop, and so we really have a very narrow window.

What I can do with this structure now is actually begin some trials on gray trigger in the background for an assessment coming up several years from now, and then request data in a specific format, after I've evaluated it, and so it gives a lot more flexibility in the assessments, and I don't have to work with the most current data, because we're not trying to come up with projections and current data management, and so we're sticking strictly to the concept of the assessment structure rather than the assessment products, and so I don't see a conflict in saying this is best available science. It will be suitable for management with the appropriate data, and so I don't see the conflict that we're picking up, and I'm in favor of this.

CHAIRMAN BARBIERI: We have a motion on the board that has been seconded. I think we've had a lot of discussion, and so, right now, the committee recommends that the council approve the proposed research/operational assessment structure concept for SEDAR stock assessments. **All those in favor of this motion, please signify by raising your right hand; those opposed; abstentions.**

MR. ATRAN: I have thirteen to two. I don't see anybody abstaining.

CHAIRMAN BARBIERI: Thank you. **The motion carries.** Let me ask -- We have already discussed the limitations associated with this motion, and so let's just make sure that we work on providing a number of bullet points in our report that can help inform implementation and improvements in this process going forward. Thank you, Clay.

DR. PORCH: Thank you for your time.

DECISION TOOL FOR GRAY TRIGGERFISH BAG LIMITS, SIZE LIMITS, AND SEASON ANALYSES

CHAIRMAN BARBIERI: This completes Agenda Item XIV, and that puts us into Agenda Item XVI, Decision Tool for Gray Triggerfish Bag Limits, Size Limits, and Closed Season Analyses, and we have Dr. Mike Larkin here to give us a presentation. I am going to just refresh your minds regarding our scope of work.

The council has requested analyses of a one-fish bag limit, a fifteen-inch and sixteen-inch fork length size limit, and various closed seasons for the gray triggerfish recreational sector. NMFS staff is preparing a decision tool to analyze combinations of gray triggerfish bag limits, minimum size limits, and closed seasons for their ability to constrain catches to the ACL or ACT. If time permits, NMFS staff may also prepare a decision tool to analyze commercial management measures. The SSC is asked to review the decision tools and determine if they are the best scientific information available. With that, Dr. Larkin.

MR. ATRAN: Just for your information, we no longer have a quorum.

CHAIRMAN BARBIERI: Okay. Thank you.

DR. MICHAEL LARKIN: I am going to try to give this by webinar, because I have an Excel spreadsheet that I wanted to go through at the end, and so if you could bear with me for a second here. What I'm going to go through is when we give the council a decision tool, I think of it kind of like a Rubik's Cube to give them for the different options that they're considering.

As Luiz pointed out, how do you take into account impacts from seasonal closures and then bag limits and size limits? It gives the council a way to evaluate the impacts of these different decisions and how are the landings going to be impacted, and that's important, because are they going to reach the ACT or the ACL? The current accountability measure for this gray triggerfish stock is you close when the ACT, the annual catch target, is met or predicted to be met, as well will the landings exceed the ACL? In that case, they have a payback provision.

What I'm going to go through now is a -- I tried to think of a simple way to give the council a way to explore these options in an Excel format, and so I'm going to go through kind of the steps, the background of it, and then I'm going to show you the tool.

Gray triggerfish is not experiencing overfishing, but it was determined to be overfished in the latest assessment, in SEDAR 43. Additional management measures are needed to rebuild the stock and, currently, Amendment 46 is proposing a range of ACLs, ACTs, and changes to seasonal closures, size limits, and bag limits.

The first thing you have to do for this decision tool is what are the future landings going to be like? We've done this numerous different ways. It depends on the stock, whether they've been open or whether they've been closed. We have done this with regression methods, with general additive models or SARIMA models, but every stock is different, and we're trying to model what the future landings would be based on the assumption that most recent landings will reflect future landings.

With gray triggerfish, it was really tricky, and I'm going to go through an example to explain why now. It's because the most recent years without any recreational closure, you have to go back to 2008, 2009, and 2011, because, in 2010, a large portion of the Gulf was closed for the oil spill.

Then, because of predicting when the annual catch target will be met, we had several closures in federal waters. In 2012, it closed on June 11. In 2013, it closed on October 15. In 2014, it closed on May 1. In 2015, it closed February 7, and so it's very -- They're not consistent, because the landings are variable, and this is just federal waters. It's not taking into account state waters, which may or may not have closed, and so I'm going to move on to that with the next slide.

During those same years when the federal waters closure took place, in 2012 to 2014, Florida remained open all year. In 2015, they closed compatible with the federal closure. Alabama, from 2012 to 2014, they closed compatible with the federal closure, but, in 2015, they closed compatible, but they reopened July 1 to July 31. Mississippi, 2012 to 2015, they closed compatible with federal water closures. Louisiana, they closed on July 4 in 2012 instead of our June 11 federal waters closure. In 2013 through 2014, they closed compatible with federal water closures. In 2015, they remained open all year. Then, 2012 through 2015, Texas remained open all year.

Trying to predict future landings is very difficult, because of all these variables, all these different -- Whether it's a federal closure or whether it's open in the state waters or whether it's closed in the state waters, some in different times, and so it makes it very challenging.

The way I pursued it for this stock is, first, I took it by wave, and so I looked at trying to -- The goal is trying to predict 2017 landings, so we can see, once we get the landings baseline set up, then the impact from the size limits and the bag limits and the seasonal closures.

First, what I did for Waves 1 and 2, is they were open from 2012 -- The recent years of 2012 through 2014, I just looked at those landings for those two waves and I took the average of those landings, and so you can see that dashed line down there at the bottom, and so the Average Weight 1 and the Average Weight 2 landings for 2012, 2013, and 2014. Whereas, in 2015, it closed within actually Wave 1, and so I didn't include that in there.

Then what about the other waves? Predicting 2017 landings, I had to go back to 2008, 2009, and 2011 and really look at that relationship between Waves 2 and the other waves, and so what's the proportion of landings from Wave 2 to Wave 3, Wave 2 to Wave 4, Wave 2 to Wave 5, and Wave 2 to Wave 6.

I chose these years, 2008, 2009, and 2011, because it was open the full -- The whole Gulf of Mexico was open during that time period, both federal and state waters. I used that, and you can see you're kind of getting similar distributions as you go across the waves there, and so I used that. Using Wave 2, I took the average proportion between Wave 2 and Wave 3 and Wave 2 all the way to Wave 6 and used that to determine what the relationship between Wave 2.

I applied that to my average landings of Wave 1 and Wave 2, and you can see what I have plotted at the bottom here is the dashed line is the predicted landings. Then you can see the actual landings from those years when the stock was open for the whole Gulf of Mexico, both state and federal waters.

That's what I used for the predicted landings, which I will incorporate into the decision tool, but then I took it -- This gets a little tricky here. I tried to incorporate uncertainty here, and so what is the -- Essentially, my goal is what's an upper bound and lower bound, and so, for my predicted landings, what's the high and what's the low?

For these, what I did, for example, for Waves 1 and 2, and I will focus on Wave 2 here, was I looked at the distribution of the recreational landings in Wave 2, and so I can do that because I know the proportional standard error. I get that from the Office of Science and Technology, the PSE that we often talk about, and so I know -- For example, in Wave 2, I took the average of 2012, 2013, and 2014. Those are the estimates, and I know the PSE for each one of those years, and so I know the distribution of landings for each one of those years.

When I break it down by mode, whether it was charter or it was private, I can bootstrap from there. Essentially, I can pick

those years, from 2012, 2013, and 2014, and bootstrap from that distribution 1,000 times and use that to get what are other potential estimates that can come from there, again knowing, if I know the estimate and I know the PSE, I know the distribution of landings from each one of those years.

I did that for Waves 1 and 2 with bootstrapping techniques, and I did it 1,000 times. To be honest with you, I took about 330 from one year, 330 from -- Like, for example, 330 samples from 2012, 330 samples from 2013, and 330 samples from 2014. I know it's a tongue-twister, but bear with me.

Anyway, once I have those, I can do confidence intervals from all those potential landings estimates, and so I did that for Wave 1, separately by mode, and then I did that for Wave 2. Headboat, I did not. That's actually a census, and so, that one, I just know what's the census of the logbooks. That, I just have an estimate. I don't have the distribution of landings for each, because it's just, hopefully, and cross your fingers, that's the actual real estimate there.

Anyway, I did that for Waves 1 and 2, and then the bootstrap samples I had for Wave 2, I applied my proportion of the landings, the relationship between Wave 2 and Wave 3, Wave 2 and Wave 6, to those samples I got from Wave 2 and was able to develop confidence intervals.

I also need to apologize. I'm working on a report that breaks this down probably a lot better and shows more detail than I'm going through here, and that's still going through clearance in our office, but I plan to provide that as an appendix to Amendment 46.

Now I know my predicted landings and my upper bound and my lower bound, and this is all going to be incorporated into the decision tool. Now I need to incorporate the management measures that may or may not be implemented, and so, for seasonal closures, I can break it down by monthly or daily. The data source, I'm using my 2017 predicted landings.

For minimum size limit, I looked at from fourteen, which is the current size limit, up to twenty inches fork length. Bag limits, right now the current bag limit is two, and so, really, I just looked at dropping it down to one, which is currently being considered in Amendment 46.

The data sources for the minimum size and the bag limits come from essentially dockside intercepts from the MRIP, headboat,

Louisiana Creel, and they started in 2014/2015 doing their own recreational survey, and Texas Parks and Wildlife. I used the most recent data dockside intercepts from 2013 to 2015.

Now, for example, here's an example of the gray triggerfish fork lengths here. What I talk about is the percent reduction in landings, and so here's the distribution when I sum up all of them for all waves, and, over in that table there, is an example that I show you for headboat, but anyway, when I sum up the frequency of the distribution for all the different sizes from the dockside intercepts, and then the red line is the current size limit, I can calculate a percent reduction in landings from, first, converting those lengths to weight, using the equation stated in SEDAR 43.

For example, if I remove that bin there, that column there, of fourteen inches, so meaning I'm increasing the size limit from the current size limit of fourteen up to fifteen, all those fish that fall in that bin of fourteen inches, I remove them, and I look at the weight of that removal relative to the weight of all the other size bins.

To give you a quick example, let's say there's 1,000 pounds when you sum up all of these, and you remove those fourteen-inch bins and that removes 100 pounds, essentially, you do a percent reduction of 10 percent, because you just removed about 10 percent of the landings by increasing that size bin. You're under the assumption that those fish will not be harvested anymore, and so those 100 pounds are removed and I get a 10 percent reduction.

Over here is an example of what I have in the decision tool. The decision tool, I will show you. I have it broken down by mode and also by month there, but you can see the different percent reductions that were calculated as you go from fifteen up to twenty inches.

We do it by month. There were some occasions when we would go to -- Our standard procedure is there has to be at least thirty samples of, in this case, gray triggerfish sampled per month. If there's not, then we pull samples from the nearest month. For example, if you're in April and you only have twenty-five samples, but then there's like twenty in May and twenty in March, you actually pull samples from both of those combined, and so it would be March, April, and May combined to get a sample size of thirty.

That didn't happen that often, but we try to make sure, when

we're doing this analysis, that we have a minimum of thirty samples when we're doing both the size limit and the bag limit analysis.

CHAIRMAN BARBIERI: Mike, we have a question here.

DR. CHRISTMAN: I am not completely sure what these percentages are in this table. I think you may have said it just a little bit too fast for me.

DR. M. LARKIN: Sure. I'm sorry. Let me go through that example again. If this is -- Let's say we have all the dockside intercepts of what are the size of fish that were caught, that were harvested, from the surveyors, or even the headboat, if they're recording the lengths, or the dockside intercept recording all these lengths, and so that's our, I guess, you could say our population there.

Now, what if we want to -- This is what we get, and you can see, in this case, there are still some undersized fish being harvested, but those, I ignore. I make the assumption that undersized harvest is going to continue in the future, but, anyway, look at that -- You see the red line there and you see that column of fourteen.

Let's say we remove those, meaning those fish are no being harvested, and those fish are actually converted to weight. I take all these lengths and I convert them to weight, and so you remove those fourteen fish, which are no longer being harvested, and convert them over to -- Let me think about this for a second.

Let's say you have 1,000 pounds is the total and then you reduce the harvest of those fourteen-inch, those fish are in fact being released, and let's say that's about a hundred pounds. I'm just giving an example here, but a hundred pounds, that column of fourteen equates to about a hundred pounds of fish. Therefore, you drop down to 900 pounds, and so you're removing 100 pounds. You're removing 10 percent of landings. 10 percent of the weight is being removed. Therefore, in that case, you would calculate a percent reduction of landings from an increase in the size limit of 10 percent. Does that make sense?

DR. CHRISTMAN: Let's see if I understand this correctly. Are you saying that for a fork length of fifteen in April that 16 percent of the fish are of a fork length of fifteen or fifteen or more or by weight or what? I'm not quite sure what these percents are.

DR. M. LARKIN: If you're looking at April and the 16 percent, you're right that that column -- By removing those fourteen-inch fish, you're getting a reduction in your landings of about 16 percent.

DR. CHRISTMAN: Okay. Thank you.

DR. M. LARKIN: Sorry. It is tricky, I know. Now, to move on to bag limits, it's a very similar thing, but this one might look silly, because how do you get a bag limit of less than one fish? The way the data comes in is we know -- Let's say on a trip there were four people and there were two gray triggerfish harvested. We don't know like Angler A caught this and Angler B caught this. What we know is if there was four and two, then that equates to about less than one. It's about half a triggerfish per person.

Meaning if you wanted to maximize -- If you were on a trip that maximized the gray triggerfish bag limit, if you had four people, you could have eight triggerfish. That would be the two there, the two -- In this example, that would be two triggerfish per angler, and so that's why you get a lot of most of the trips -- It's meaning the number of people exceeds the number of triggerfish harvested. That's why you get that less than one, and so that always looks weird when I show that.

Anyway, this is the distribution of all of them. In this case, I broke it down, just to show you an example here of what I have in the decision tool. When you reduce the bag limit down to one, for example if you did it in January, you get about a 19 percent reduction in landings, and so going from two down to one.

Now, to go more into the decision tool, as I talked about before, it's really to give the council a way to evaluate reductions in harvest associated with the seasonal closures, the size limits, and the bag limits, and there are caveats to this.

I mean it doesn't take into account ever-shifting closed seasons. You close off a month and everyone could fish the week before or the week after it. It doesn't take into account changes in average size as the stock is rebuilding, and it doesn't take into account changes in fishing effort, and so it certainly has some caveats.

Another thing is -- Here we go. I was getting ahead of myself. This is how it's calculated in the decision tool, and I will

show you where it is, and so the projected landings, and I break it down by mode and month, and you will see how I have that presented in the decision tool, but, really, it's the predicted landings for each mode month times, in this case, OM is the percent of the month that's open to fishing times SL, which is the percent of landings reduced from the change in the size limit. It would be 100 if there is no change in the percent of landings, if there is no landings reduced, and then times BL, which is the percent of landings reduced from the bag limit, and so this is kind of like the root equation that goes into the decision tool that I'm going to show you in a minute.

Another thing I take into account is you have a little section for discards and total removals, and this is just a hypothetical example of how I calculated it. If you know the predicted landings for the whole year are 400,000, and let's say you impose a size limit that reduced your annual landings down to 350,000, that 50,000 pounds, which is essentially being thrown back -- You're increasing the size limit, and so, therefore, those fish that would have been caught now -- Let's say, for example, that fourteen-inch minimum size limit equates to about 50,000 pounds being reduced.

I take those 50,000 pounds and I divide it by the current average weight, which actually I got that from the most recent recreational dataset, but, anyway, that gives me a number of fish discarded, and then I apply those numbers by the discard mortality rate, which is 5 percent from SEDAR 43, from the base model run, and I can calculate dead discards, and so essentially the number of fish discarded times 5 percent to get the number of dead discards. As you'll see, I have a little section in the decision tool where you'll see that calculation.

Then I also incorporate the total removals, which is dead discards plus the number of fish landed, and so the total -- Let's say your total harvest is 350,000 pounds. I divide that also by the average weight, to convert that to numbers, and so you can see the total fish harvested, in terms of numbers, plus the dead discards.

I just tried to give the council another option, so as they explore different management scenarios that they can see how that impacts the dead discards, how that impacts the number of fish landed, and so this is just a cue here for me to show you here -- So hopefully you guys can see this quite well on the screen. Sorry some of the text comes out small.

Anyway, this is an example here of -- Here, you have options and

so let's say you want to close March -- You can even do like March 15. You can see, in this case, 48 percent of the month is closed, but then, for March 15, all of the month of April. If you watch this, this is the total landings for the year, and so you will see this will change.

Let's say you want to change the current status quo of a fourteen-inch minimum size limit. If you want to jack that up to sixteen, you will see it will drop down to 310,000. Then if you want to also reduce the bag limit here, you can see it drops down to 265,000.

Actually, where this is coming from is I have these little matrices here of broken down by headboat, broken down by charter. I didn't have enough to do Texas and LA Creel by themselves, and so I just pulled charter by MRIP, Texas, and LA Creel. Private is also pooled between MRIP, Texas, and LA Creel. That way, I had enough sample size. There are some stocks for Texas that we have enough, but this certainly was not one of them.

Anyway, then you can break it down. I give you some text here of how the different alternatives are set up for the different ACTs and ACLs and what are they based on. This is all coming out of Amendment 48, and so, down here, you can see how these landings -- From those changes I just made now, here's the total predicted landings, 265,000, here, how are those -- Are they going to exceed the different options for the ACLs? Are they going to exceed the different options for the ACTs here?

The yellow highlights an overage here, and so you can see one of them, for example all three, has a higher ACL of 431,000, and so you can see that, in this case, it's not yellow. In this case, you will be under the ACL, as well as under the ACT in 3c, and I built in -- Excuse me, but all 3c.

I built in a little graphic here, so you can kind of see how it changes. These are the different ACTs here. In this case, I just built that graphic in for the ACT, because the current accountability measure is to close the fishery when it meets or is predicted to meet the ACT.

Then I have different options here. You can see actually the projected closure date, when these different ACTs will be met and how many days in a season, and so you will see, if I go up here and I change July and make that closed, and then I scroll back down, you will see July is now a flat line there, closing harvest in the month of July, and now the overall landings

dropped, and these will be modified too, the different closure dates and the seasons.

Then down here is when I incorporate those discards. You can see, from this management action, what is the projected number of discards, and it's all relative, relative to the status quo, and so meaning if you have the current size limits and the current bag limit, you will assume that's zero discards, but then, if you impose a change in the size limit and the bag limit, then you will have those landings reduced, and those landings are converted to numbers and then multiplied by discard mortality rate.

Then you will see how these -- They're all relative to different changes that you make, the number of discards and then the dead discards and then as well as converting the total landings into numbers. That's here, and then total removals is adding up the -- In fact, if you click on it here, you can see I'm just simply adding up the dead discards with the landings. It's a nice little bell-and-whistle kind of thing, so you can pursue different management options here. You can see how the landings change.

Then, down here, is where I incorporate those upper and lower bounds. If you wanted to look at here is from the upper 95 percent confidence interval and how they are relative to the ACLs, and so you will see, in this case, they will be a lot higher. In this case, the next one down below is the lower bound, and so it will be even lower, and the negative numbers just mean that the projected overage is from -- That there is in fact an underage. A negative is you're under the ACL and then the yellow is your overage.

Then I just wanted to show you, real quick, the nuts and bolts of everything here. This is just simply how I defined the ACLs. This, I know it's very tough to look at, but this is just how we developed those drop-down menus for whether we're doing different size limits or closures or bag limits, and this is just a lot of procedures to look at to incorporate the different reductions, for example, from the size limit, and so it's broken down by mode.

You can also see, in the headboat here, that I have it broken down by -- Landings are broken down by headboat and charter. I know it says MRFSS charter. This is a typo, but this is all the charter landings and all the private landings and then those get multiplied by the different matrices I have for size limits and bag limits here.

This one, you can see there's not many options here, because, really, we're just reducing down to one, because we can only have two, and then just some more details of the landings. This is just stuff I used to make that figure there. You can actually track it and see if it goes above the different ACT. This is the procedure I used to develop the closure dates, and this is just a fancy graphic to show what the landings are with the upper and lower confidence bound there.

I know I went through it kind of pretty fast there, but that's our decision tool that we gave the council to try to give them guidance for their different management options.

CHAIRMAN BARBIERI: Thank you, Mike. Any questions or comments for Mike? What we are being asked to do is to approve this methodology that Mike just described as a scientifically-valid method for the council to consider different options, the combinations of multiple management options, and get kind of like instant feedback on the implications of that. Kai.

DR. LORENZEN: Just a question. Did you have a chance to essentially test this retrospectively on some of the past years?

DR. M. LARKIN: That's a great question. I tried for gray triggerfish, but it's really following the assumption that -- The answer is yes, but we've had some complications, meaning it's under the assumption that closures will also match -- The states will follow as well, and, for gray triggerfish, it was rather unsuccessful, because it was under the assumption that, okay, the states will close as well, but when they don't and then the landings pursue, that's another variable that kind of throws a monkey in the wrench, and so -- Actually, I'm going to punt over to -- Maybe John I think has looked at that more. Have you and Nick looked at that further, John, in terms of model production and hind-casting, to see success or lack of success?

DR. FROESCHKE: Sort of. I mean the way we've done it is that you basically build it and leave out the terminal year and then use it to test on that. I don't know how portable this approach is to that, because everything seems to be included in all the data.

One idea that came to my mind is, since you're focused on the early portions of the year, is that you mind use 2010 at least, because that fishery should have proceeded normally until Deepwater Horizon, which they couldn't foresee, and so they

wouldn’t be responding. That might be a brief set of data that you could use for some sort of out-of-sample testing.

DR. M. LARKIN: Because that was in Wave 2? That was in April, I think, is when it closed, and so, therefore, Wave 1 should be untouched. It sounds like we definitely need to pursue that further, in terms of looking at the success rate of them, but it’s also under the assumption that there are no monkey-wrenches thrown in.

CHAIRMAN BARBIERI: A follow-up, Kai?

DR. LORENZEN: For those previous years, you would know -- You could almost quantify the monkey-wrenches too, and so that would be a fairly good test. I am thinking that I like the idea of having a decision tool that will help people look at different options quite quickly and so on.

At the same time, it seems sort of reasonably -- There are a lot of kind of semi-empirical assumptions going into that, and so, from a scientific perspective, I think it’s kind of difficult to judge. The only question is does it do a reasonable job in terms of predictions, and you would find that out by --

DR. M. LARKIN: I think for like greater amberjack, it seemed like it was quite well at predicting keeping us under the ACL and ACT for that one.

CHAIRMAN BARBIERI: Jeff and then John.

DR. ISELY: A couple of comments and then a question. First, I like what you did. I think it’s a great way to look at these different variables interactively, and so I really like that, but I would caution, I guess, that you’re not going to see the reductions that you expect, for a couple of reasons.

First, you’re going to get a derby-day mentality, where if the season has been closed, people are going to go out on opening day, and that’s going to reduce some of your effect. Even though trigger aren’t really targeted that much, you’re still going to see a little bit, and, secondly, that with this length limit increase, you’re going to have growth of those fish, and so you’re actually going to increase the numbers of fish at larger sizes later in the year, and those aren’t being accounted for in the current size structure. Those are two things I can see.

I’m not sure how you can incorporate a growth model in this.

I'm sure it could be, but it's going to add a level of complexity that would probably need to be modeled with some sort of Bayesian approach, I guess. Then the question I have is you mentioned that you sort of disregarded the undersized fish. Does that mean you left them in as if they had continued catching those fish under fourteen inches?

DR. M. LARKIN: Yes,

DR. ISELY: So you removed just the fourteen-inchers and left the thirteen and below for the additional size analyses?

DR. M. LARKIN: Yes, under the assumption that the most recent underharvest rates will continue. Actually, I did look at that. It has decreased. That was one thing that Carrie and I looked at, because I think the last time it was a lot higher. I think it was like 40 percent, but now I think it's down to like 20 percent, which maybe there's another story there. I think they were misunderstanding between fork length and total length, but you're right. To answer your question, I do -- Under the current level of -- Illegal harvest will continue. I make that assumption yes.

CHAIRMAN BARBIERI: John Mareska.

MR. MARESKA: I think you did a good job so far, but, I think, to fully evaluate this, I would also like to see some information on number of trips by wave and the catch rate, because those have a large bearing on your dead discards, and, in the presentation at the end, you included some information about the biology.

For a fish that we've considered low recruitment, I think the months that were closed that were during that spawning season, and I think that would have definite implications on the recovery rate of this stock.

CHAIRMAN BARBIERI: Thank you, John. Mike, I guess this provides you some good suggestions and recommendations, perhaps for tweaking and kind of refining the current approach that's being used, and perhaps you can return at a future date to kind of show us some of the most recent implementation, and I like Kai's suggestion that we look at performance of how this actually -- How successful it is in predicting some of those changes that we already know happen and we know the outcome of them. Thank you very much, Mike. That was a very useful approach.

Moving on, we have two items that have to do with questions or issues that Steven has identified or would like to get some clarification from the committee. Can you discuss those with the committee, please, Steven?

REEVALUATION OF SSC RECOMMENDATION FOR HOGFISH EQUILIBRIUM ABC

MR. ATRAN: Agenda Item XVIII, entitled Reevaluation of SSC Recommendation for Hogfish Equilibrium ABC, this is an item that has some implications on the Hogfish Amendment 43 of the council that we'll be taking final action on. It may have some implications for the vermilion snapper ABC that you just voted on earlier today, although we're specifically looking at hogfish.

I have extracts from three recent SSC summaries in your materials. One was from last May, when you gave a time series of yield projections for hogfish under a declining yield scenario. There was another one from January, when you gave a constant catch scenario, and the one that is of greatest concern was in the middle.

In September of last year, you were considering the constant catch scenario. You hadn't decided the best way to go about calculating it yet, but you did pass a motion that said, by a vote of eighteen to two, the committee recommends that, if at the end of the projection period, no new assessment is available and the equilibrium ABC is below the ABC of constant catch yield stream, ABC should revert to the equilibrium ABC. We noted that this was meant to apply to all stocks that had declining yield streams and not just hogfish.

Based on this, we have an alternative that is actually currently a preferred alternative in our hogfish amendment to go with the three-year constant catch yield stream that was recommended by the SSC, but, after those three years, to drop down to the equilibrium yield.

Two things. Number one, the council didn't really want to do that drop-down. That's a pretty large drop-down, especially considering that there's a new assessment coming up very shortly, but the other thing is that it seems, to me, that we've got some conflicting information about using equilibrium ABCs between the September meeting and the next meeting in January, when you reviewed the red grouper assessment, because, in September, we were looking at this equilibrium number and incorporating it into the ABC recommendations, once we get beyond the projection period.

Then, in January, with red grouper -- Of course, we had some other problems with the long-range projections, but the SSC was saying that, because these are such long-range projections and there was a great deal of uncertainty with them, they didn't feel that we should be using equilibrium ABCs and OFLs at all, and, in fact, those were not presented to the council in the committee report.

Of course, we just heard Clay a little while ago talk about some of the problems with those long-range projections when you don't have a good stock-recruit relationship. With that in mind, do you still want to adhere to this motion that you made back in September that if at the end of a series of projections, if we have no new projections, that we should revert to equilibrium ABC, or do you want to modify this?

Like I said, this is going to make a difference on what the council decides to do with hogfish coming up in a few weeks, but, if this is in place, it's also going to apply to the vermilion snapper assessment that you just made, or at least I think it will.

What I'm hearing is that, in most cases, the equilibrium ABC does not -- You don't have enough confidence in it for us to actually use it as a management target, but I would like to see what the SSC has to say about this, and, again, do you still want to adhere to this recommendation that you made in September?

CHAIRMAN BARBIERI: Bob Gill.

MR. GILL: Thank you, Mr. Chairman. I must confess that I'm a little confused by some of this. It seems, to me, that the modification that the council made is moot, because that would exceed the ABC that the SSC has provided, and so it doesn't come into play unless a change is made somewhere, either the SSC makes a revised ABC or something, and so I'm not sure of the value, or I understand the value, of that modification, and so perhaps we could start there.

MR. ATRAN: I may have been at fault for misdirecting the council. They said they didn't want to do that big drop down to equilibrium ABC, and I thought it would be okay if we just said that at the end of the three years, under constant catch, that we can just stick with that constant catch level until we get the new assessment, but then, when we went back and reread the motion that was made, it looked like maybe we can't do that.

I consulted with NOAA General Counsel and they said yes, there might be an issue with what I gave them, and so, under this motion, we would have to go back to the original alternative that says that we would be at constant catch for three years and then drop down to the equilibrium number. I'm not going to use the numbers, because I don't recall them off the top of my head, but I can get them if you want.

In the case of hogfish, we are planning to get a stock assessment in 2018, which means we will probably have some new numbers in 2019. It might be a moot point, or it might not, and it definitely would not be a moot point for vermilion snapper.

CHAIRMAN BARBIERI: Yes, Bob.

MR. GILL: The second part of that is that, as I see it, we don't have any additional information to make any changes. We've got what we've got. We made a decision and right or wrong, whatever that was, but we have nothing that gives us any suggestion that we can or should make a change, and so I'm not quite sure what this committee is expected to do here.

MR. ATRAN: To that point, you already have made a change between September and January.

CHAIRMAN BARBIERI: No, we did not, Steven. I mean this is the same. Those are two different stocks, and so the assessments are different and the amount of uncertainty is different, and I know that this is something that makes it a bit difficult in terms of the council sometimes understanding what's going on, but we cannot treat each and every stock the same, because the length of our projections and recommendations has to do with the committee's level of comfort with the uncertainty in the assessment and how that uncertainty was accounted for and the projections.

In some cases, it may be appropriate for us to go with an equilibrium yield as a fallback. In some cases, it won't be. Sometimes we're going to make recommendations that are very short term, two or three years, and sometimes we can make ten years, depending on our -- This is where we can apply our collective professional judgment in evaluating the conditions of that particular stock and making a recommendation accordingly.

MR. ATRAN: Really, I don't think the issue is whether you want to do a three-year or a five-year or a ten-year. The issue is, if we don't have new projections, what happens at the end of

that projection period?

CHAIRMAN BARBIERI: We can't respond to this generically. I mean if you're talking about hogfish -- Are you asking about this particular one, hogfish?

MR. ATRAN: This is a generic motion, and so I'm referring to this generically. In the case of hogfish, it may be a moot point, because we may get a new stock assessment before that fourth year even kicks in, but, like I said, this is a generic motion. We may have to apply it to the vermilion snapper yield stream that you folks just voted on. I'm not sure yet.

CHAIRMAN BARBIERI: So what is your specific question for the committee?

MR. ATRAN: To me, I felt that we were getting conflicting information between September and January on equilibrium yields. In one case, you used it for a management recommendation. In another case, you said -- Again, it seemed to be a generic statement that these are long-range projections that you have no confidence in. To me, that's confusing, and maybe I would like some clarification on how and when equilibrium yields should be used.

CHAIRMAN BARBIERI: Bob Gill.

MR. GILL: I don't know if I will shed any light on this, but my take on this is this is the -- Call it a policy. It's the baseline position, and, on a case basis, like with red grouper, SEDAR 42, we said no, that's not going to work and we'll do something, but, in the absence of abnormalities, this is the process by which we think we ought to go forward. I think that's the way I interpret it.

CHAIRMAN BARBIERI: Evaluating whether it is applicable for that particular case -- We can't just say that we're going to apply this for every single time, because there will be differences in how the parameters in the model are estimated, and the whole process, whether we have confidence in our stock-recruitment relationship and you can actually come up with an equilibrium yield estimate that you believe is reasonable -- In some cases, it won't be. Lee.

DR. ANDERSON: I am going to quote what I think is a very smart man, and that was our Chairman earlier, who said that we have these committee meetings quite regularly, and so I think if you have a stream of numbers out there, you don't need to make a

decision of what we're going to do three years from now.

I would think that a policy would be of let's talk to the SSC and see what they think, because there is going to be the expertise of the guys around the table and there may be other information. I just think it doesn't make sense, at the end of a four-year period, to say this is what we're going to do no matter what. Turn it back to the SSC.

CHAIRMAN BARBIERI: Steven.

MR. ATRAN: Yes, but I think the problem is the same as what somebody said. We don't have any new information here, but it's just I was trying to get clarification on use of equilibrium yield. If, at the end of the projection period, we say turn it back to the SSC, but don't provide any new information, they're not going to have anything on which to base a change.

What I'm hearing is -- I guess it was Bob Gill that I thought put it pretty clearly, that maybe this should be the base case and if you want to deviate from this, you should indicate so, on a case-by-case basis.

CHAIRMAN BARBIERI: This is fine, but I am telling you that I feel very uncomfortable as an SSC member in getting myself to make a motion like this that now represents some kind of rule that we are not allowed to deviate from. I don't consider this process -- Maybe I misunderstand what I'm supposed to do here, but every single assessment that comes before this committee is to be reviewed by the committee. We are going to evaluate the conditions and all the situations for that particular case, and we're going to provide catch advice accordingly.

It's not something, if you have a question -- I understand there will be times when you have a question, but just come back to us and ask us, okay, in this case, if you're working on a management plan and you need to have long-term projections, you can say, listen, folks, here is something that -- I think that would be easier for us to evaluate on a case-by-case basis.

MR. ATRAN: If you read what's on the screen, it says the following motion is a recommendation to apply to all short-term ABC projections with a declining yield and not just hogfish, and so this took out the case-by-case situation right there.

CHAIRMAN BARBIERI: Let me then ask you something. When does this expire?

MR. ATRAN: The way it's worded, it's just an ongoing policy.

CHAIRMAN BARBIERI: So this is going to be forever? How many other motions have existed over the last twenty years, or since the implementation of the first SSC, that are continuing in going forward?

MR. ATRAN: I imagine quite a few.

CHAIRMAN BARBIERI: I mean I'm getting to the point, really, in this that I am going to have to revert to NS 2 and all the codified processes there for how the SSC provides scientific advice, and I am going to request legal counsel to please weigh in on how our decisions and how these motions that are made here become part of our SOPPs.

I mean I don't want this to be we are making decisions that are providing scientific review -- We provide recommendations to the council and we provide catch advice, but I mean I don't want to be bound to some level of strict codification into something that's not completely outlined in some kind of legal documentation, because, in this case, we are allowed to change our minds.

I mean this is why we have a committee. Otherwise, I could see that we would have an algorithm in place that we would go through and we don't need to pay all these people to take time to come here and exercise their professional judgment and the synergy of discussions. It would be completely automated in an algorithm. We are actually being asked to evaluate every situation and respond accordingly. That's my interpretation of how we're supposed to operate.

MR. ATRAN: Without disagreeing with what you say, I think that is how you should operate, but I'm reading what the summary said, that this does apply to all short-term ABC projections with a declining yield. In this case, you did say this is an ongoing motion.

CHAIRMAN BARBIERI: Right, but, Steven, what happened is, in January, we decided to depart from that, because, in that situation -- That's what I'm saying. In that situation, we felt that departing from that was what our collective best judgment was, and we don't have to be bound to this.

MR. ATRAN: Is it your position then that the motion that's up there was only intended to apply to hogfish?

CHAIRMAN BARBIERI: Steven, what I'm saying is that, in this case, it was in general, but, I will tell you, as an SSC member, if I'm not being given the freedom to reevaluate every situation, I mean I'm not sure I belong on this committee.

My whole involvement is based on how we are asked to come and exercise our combined, meeting-by-meeting, and I don't want to get caught in some codified set of procedures that is too strict and we are not allowed to make different choices and that you're going to find inconsistencies, because I don't think we can best serve the council in this way. I'm being perfectly honest. I do feel that this would present a problem. Lee.

DR. ANDERSON: You guys seem to be talking past each other. You just repeat the same things, but, it seems to me, if I look at that motion right there and I were to evaluate it, I would say, by eighteen to two, these guys made a poor scientific choice that said we're going to go and we're going to let this be forever without taking a second look at it.

I think it's a fool's quest to try to have an algorithm that's going to handle everything, and so I agree with you, Mr. Chairman, and if it takes a motion to say send it back after three years or so -- If that's what you need, but I don't think we need it. I would just hope the policy around the table here is that we're going to be -- This committee meets two or three times a year and we can relook at things.

I don't want to -- The Mid-Atlantic SSC has things that we have three years or something that says that they will automatically be reviewed by the SSC before they go into effect. We would never do something that says it's going to last forever.

Steve, to your point, you may not have new information, and that may be perfectly true, but they can look at it and say this is all the information we have and now is there any wisdom around this table that can add to it, and it's just better than having it in black and white, and you don't box yourself into a corner. Excuse me for going on.

CHAIRMAN BARBIERI: No, and, Steven, I swear that I'm not trying to be difficult here, but I'm just trying to be honest and direct with you about how I feel about SSC operations in this case, and there are some sort of philosophical principles that I think are very important for how we operate, and I think this is one of them, that we are allowed -- If we're going to be looking at the consistency -- I know that, in the past, you have asked us, like three-year or five-year or long-term, ten-years, and

the committee will make different recommendations on the lengths of projections, just because, in that situation, as long as we're justified well, I don't think we have any inconsistencies.

MR. ATRAN: I am trying to find my email from Mara. I can't find it right now, but, again, I don't disagree with you, and I don't really think we're forcing you into a particular position. I think maybe, if you disagree with what was written here -- Because I'm kind of focusing on the sentence above the motion, which I wrote, based upon my notes from the meeting. Maybe that wasn't the intent of the SSC.

CHAIRMAN BARBIERI: Steven, let me clarify this. What was the inconsistency that you saw with this?

MR. ATRAN: The inconsistency I saw was that we were making use of equilibrium ABC in a management recommendation in September on this stock, and then, on another stock, in January, we were saying that, because there's a lack of stock-recruit relationship, we had no confidence in the equilibrium numbers, and we weren't even going to present those to the council.

CHAIRMAN BARBIERI: So that's justification right there.

MR. ATRAN: So you're saying you do have confidence in the equilibrium numbers for hogfish?

CHAIRMAN BARBIERI: Well, I will tell you, I am going to call a point of order here. I'm sorry, but I -- You can ask your specific question, Steven, and I don't mean to spend all afternoon here arguing about what we decided back in September of 2015. I think that we have provided justification for every single decision that we make.

MR. ATRAN: Okay. From what I'm hearing and what I'm not hearing, this motion, which was made in the context of hogfish, will continue to apply for hogfish. The vermilion snapper decision we made this morning, and I was trying to get you to say what you want to do at the end of the period, and you specifically said just leave that blank, and so this would not apply to vermilion snapper.

CHAIRMAN BARBIERI: What I'm saying is that, for every single stock managed by the council where you have a yield stream that's being developed, recommended, by the SSC, please come ask us. I mean is this making things difficult for you? Is that the --

MR. ATRAN: I kind of feel like we're talking about two different things, but the bottom line is that there is no sentiment, that I hear, to make any changes to what's on the screen right now, and so it will stay as is.

CHAIRMAN BARBIERI: With that, that don't hold us to this if we decide to change our minds, because we are allowed to. Any other questions or comments regarding this item? That completes the discussion of Item XVIII. Item XIX is OY Exceeding MSY in Some Scenarios.

MSY EXCEEDING OY IN SOME SCENARIOS

MR. ATRAN: I don't think we've ever actually codified, in your words, what OY is. We have generally been using OY as the yield at 75 percent of FMSY, or the MSY proxy. Most of the time, that's worked out pretty well, but we did have a situation with the red grouper stock in January, where, when we brought the projections out, at least long-range, we ended up with OY exceeding MSY in some years, and we had a series of email exchanges with Clay and Shannon, and I'm not sure if you were involved or not.

CHAIRMAN BARBIERI: Yes.

MR. ATRAN: Okay. I think I understand what was happening. It's the OY is being calculated separately for each fleet, and so when you drop down the F, you're changing the overall selectivity, and so that can result in some situations where OY exceeds MSY.

My feeling is, even though this was an unusual event, is that really we shouldn't have any situations where OY is greater than MSY. By definition in the Magnuson Act, OY is a reduction from MSY, and so I'm not sure if we should continue using that formula or maybe go with something that guarantees that it never happens, like maybe going to a straight 75 percent of MSY instead of 75 percent of FMSY. I wanted to get some input from the SSC to see what you folks felt.

CHAIRMAN BARBIERI: Clay.

DR. PORCH: I just wanted to clarify a little bit. The issue that Steve is alluding to can explain a little bit of the disparity between OY and MSY, but the biggest single issue is that your computing an MSY proxy, in the case of red grouper, and not the actual MSY, and so it's an F proxy. The reason why we compute a F proxy is because we don't really know what the

spawner-recruit relationship is.

We give short-term advice, assuming recent levels of recruitment will persist into the near term, but, to calculate an equilibrium OY and an equilibrium MSY, maximum sustainable yield, we would have to make some assumption about long-term future recruitment.

Now, if you want to assume long-term future recruitment would be the same as the recent average, and so recent averages will persist forever and ever, then you can just take the result of the long-term projections as your OY. In other words, if you're projecting at your MSY proxy, your F proxy, for 200 years, at the end of that, the catches will stabilize and you could call that your MSY proxy, but now you've basically computed a proxy to the proxy, because remember that originally we're dealing with F proxies, like F30 percent.

All we're assuming is, in the short term, that recruitment will stay near what it has been in the recent past, but, as soon as you go to start computing what equilibrium biomass is at that, then you're assuming that those near-term recruitments will persist forever. Do you get the subtlety of the -- It's an important, but subtle, distinction.

What happens is the reason why, in some cases, OY ends up being higher than MSY is because you're using a proxy like F30 percent, but then you're turning around to compute MSY and OY, assuming that recruitment will be constant forever.

All that means is, if you really believe recruitment was going to continue this way forever, then the fishing mortality proxy you're using would be too high, and so it's too high to produce the MSY and you're ending up overfishing. Actually, then your OY is really the MSY, if you really believe that recruitment would continue at recent levels forever, and so there's a discontinuity in the logic there.

I know it's kind of a twisted tale, but the bottom line is you're using a proxy because you don't know what long-term recruitment would be, but, as soon as you compute the MSY, you're making some assumption about recruitment. In this case, it's just using the end of the projections, assuming recruitment will stay at recent levels forever, and so that's why there's a discontinuity between OY and MSY.

MR. ATRAN: I guess the question still is, is this something maybe we need to address and change the way we define OY or is

this such an unusual situation that happened with red grouper that we can pretty much ignore it as just a one-time event?

DR. PORCH: I guess you're asking me. It's happened with a couple of other species in the past. I'm trying to remember which ones they were, but it can happen if -- Basically, I guess it would typically happen if Fmax is -- It depends on how you compute Fmax, but, essentially, if your FMSY proxy is any case where it's higher than Fmax and then you try and compute your OY or MSY by assuming recruitment continues at recent levels forever, then you're going to get that sort of situation, and so you actually would get a higher yield with a lower F than your proxy, but that's because the proxy doesn't assume recruitment will continue forever and ever. It's just using short-term recruitments when you're doing short-term projections. Did I succeed in confusing people further or does that make sense?

CHAIRMAN BARBIERI: Is that okay, Steven, in terms of the -- The current situation, again, is going to be kind of like case specific.

MR. ATRAN: I am going to have to go back and listen to the recording, because I wasn't fully following what you said, but, in my mind, I'm still going through is there a problem? Should we be thinking about maybe adopting a different OY, which would require a plan amendment?

A couple of suggestions that came up would be just make it 75 percent of MSY instead of 75 percent of FMSY. Another suggestion, which I kind of like, would be to say that OY is equal to the ACT, and that would effectively eliminate one of the rather myriad number of management targets, but I am trying to -- In my mind, I don't know if it's worth bringing it up as a potential amendment item along the way.

CHAIRMAN BARBIERI: Clay.

DR. PORCH: Just a reminder. Again, if we don't know the spawner-recruit relationship, we can't technically calculate MSY or OY, in the sense of an equilibrium value. You could put placeholders, and you probably need to put an asterisk. That's MSY if recruitment stays at recent levels over the long term, but, otherwise, you can't really compute it.

Now, OY actually is supposed to be calculated based on other considerations the council may have, and so it doesn't have to be some kind of formula like 75 percent of FMSY. In fact, I think the 75 percent of FMSY proxy is more useful as an ABC

buffer, like we just discussed, and not necessarily OY. It's just that, historically, that's what the council used to calculate OY on, on the basis of 75 percent of whatever your FMSY was, and so that's why there is some confusion there.

CHAIRMAN BARBIERI: Thank you, Clay. Kai, did you have a --

DR. LORENZEN: Nothing very illuminating, probably, but I just wanted to sort of agree. I mean it's an artifact that arises from the use of proxies, in some situations, and I think we just have to deal with it on a case-by-case basis.

CHAIRMAN BARBIERI: Okay.

MR. ATRAN: Okay. Like I said, I've still got some issues going through my head, but I don't think they're SSC issues, and so I just wanted to get whatever input I could from you folks.

CHAIRMAN BARBIERI: Thank you. That completes Item XIX, and we move into Item XX, Review of Draft Amendment 44, MSST and MSY Proxies for Reef Fish Stocks. Steven, I think this is your show as well.

REVIEW OF AMENDMENT 44 - MSST AND MSY PROXIES FOR REEF FISH STOCKS

MR. ATRAN: Yes, and I also sent out a very late addendum, a one-page addendum, that has to do with a reorganization of the alternatives in Action 2 that the IPT had made that I didn't get into the version that went out to the SSC. You've actually looked at this before. It got put on the backburner for a long time, because we had so many other pressing issues, but now we're starting to bring it back forward to develop into an amendment.

There's a couple of reasons why we're developing this amendment. The first had to do with the fact that we have some stocks that have very low natural mortality rates, red snapper being one of them, and when we use the formula that we generally use to calculate MSST, which is one minus M times BMSY, one minus M, for a stock that's got a natural mortality rate of 0.1 or lower, gives us a 90 percent of the MSY level for the MSST, and we're getting so close to the MSY level that it may not be a significant difference.

Just natural fluctuations alone might cause us to drop up and down around that MSST level, and so one of the things that the council was interested in doing was trying to see if we could

provide enough separation between our MSY estimate and our MSST estimate so that we were not getting spurious declarations that the stock is overfished, if it dropped below and it wasn't just due to fluctuations.

There was some analysis that the Southeast Center did. I think it was reviewed by the SSC last year, and it was either January or May, that evaluated fluctuations under a variety of life history strategies. Basically, if I remember correctly, it concluded that stocks were unlikely to fluctuate by more than about 5 percentage points due to natural fluctuation alone. I think that's what it concluded. I'm going off the top of my head.

One of the things we wanted to do was address those low-mortality Ms, but, at the same time, we realized that we never assigned MSST to all of the stocks that we have under management in reef fish. We tried to do it back in 1999, under our Sustainable Fisheries Act Amendment, where we were defining everything all of our biomass targets, as an SPR.

At that time, NMFS rejected the SPR-based estimates. They said you can't make an SPR a biomass reference point. You can do the yield when fishing at FSPR, but not SPR itself. After that, we started assigning status determination criteria on an as-needed basis.

If we got a stock assessment that indicated the stock was overfished or would be once we adopted the criteria, we would put a plan amendment in place for a rebuilding plan and adopt the criteria at that point, but, if we didn't have a stock assessment or if the stock assessment said the stock was doing fine, we didn't adopt them, and so we only ended up with MSST values for about a half-dozen stocks.

The National Standard Guidelines of the Magnuson-Steven Act say we're supposed to have them for everything, and so a second reason for this is to try to make sure we have MSST values for all of the stocks that we manage. We already have maximum fishing mortality threshold items, and so we don't need to address that unless somebody wants to change some of them.

Related to MSST is what we're going to use as the MSY proxy, because, as I said, the current definition was one minus M times BMSY or its proxy, and so the proxy is also part of the MSST definition. We were going to go through and try to get MSST and MSY proxies for all of the stocks that we have under management that don't currently have them. For the ones that currently

have them, in most cases, leave them as is. We might need to change one or two, and vermilion snapper is actually one of them I think we need to address.

Right now, there is two actions in here, and the first action -- If we go to page 12, Table 1.2, these are the stocks that we have MSST and MSY proxies for or, in the case of hogfish, proposed. We will have them in Amendment 43.

You can see that gag, we currently are using Fmax. That's MFMT. For MSST, we're using the one minus M formula, and the MSY proxy is the SSBmax. Red grouper, it's the one minus M formula, with 30 percent SPR. Red snapper, the one minus M formula with a proxy of 26 percent SPR.

Vermilion snapper, officially, we don't have a proxy, as far as I can tell. The last item I could find in our amendments that addressed this was Amendment 23, which was our vermilion snapper rebuilding plan. It rejected alternatives to use an SPR proxy and said just use FMSY, but, as we learned this morning, the stock assessments have been using either SPR 30 percent or Fmax, depending upon which assessment you look at.

Gray triggerfish is using 30 percent SPR and greater amberjack is 30 percent SPR. Then hogfish is using 30 percent SPR, but it's not using the one minus M formula. At least this is the proposal that's in Amendment 43. The proposal is to go to a flat 75 percent of SSB at 30 percent SPR.

That's actually one of the alternatives that we have for a more generic adoption that's in this amendment, and so if we could go to Action 1 now, which is two pages onward, what we have is -- This mainly applies to species for which we don't already have an MSST defined.

Alternative 1 is no action. Those species would remain undefined and be addressed on a case-by-case basis as needed, which really doesn't conform with the Magnuson Act. That's what we're doing right now though.

Alternative 2 would officially codify that formula that we've been using, MSST is one minus M times BMSY, or the BMSY proxy. Alternative 3 is an either/or. It would either be the formula, the one minus M times BMSY, or 75 percent of BMSY, whichever is less, and so, for stocks with a natural mortality rate that's less than 0.25, it would always be 0.75 times BMSY. For stocks that are above 0.25, the formula would apply.

Alternative 4 doesn't do the either/or. It does a flat 75 percent of BMSY for all stocks. By the way, I believe there's only two stocks that would apply under Alternative 3 to that alternative method. Then Alternative 5 would go down to the absolute smallest MSST that we're allowed to go to, 50 percent of BMSY for all stocks, although I don't think the council is moving in that direction.

We've had some discussions that, in many cases, what's controlling management is the overfishing threshold more than the overfished threshold, and so, from that standpoint, going to a very non-conservative MSST may not be that much of an issue. I won't go through them, but we've got some tables where we put together what natural mortality rates we have.

CHAIRMAN BARBIERI: We have a question from Bob Gill.

MR. GILL: Thank you, Mr. Chairman. Steven, I know you said to the contrary in your discussion, but, as I read Action 1, the way it's written, with the exception of Alternative 1, you're changing all species in the reef fish unit to the same, which says you're taking the existing ones and changing all of them and the ones that are undefined become something new. If the intent of Action 1 is to be for only those that are not currently defined, I think clarification in the way it's written would be very helpful, because I read it the exact opposite.

MR. ATRAN: Actually, the table we had up before shows, with the exception of hogfish, which is in our proposed Amendment 43, they're all using the one minus M formula.

MR. GILL: But they're different than the alternatives you provide. Yes, they're one minus M, but they're not all the same biomass indicators, and so I think you need some clarification as to what the action is trying to achieve in terms of the existing ones as well as the undefined ones.

MR. ATRAN: I think what you're referring to is what MSY proxy would be associated with this, and that's Action 2. Action 1 is just whether or not to use that formula or some other formula. Again, we have natural mortality rates for all the stocks for which it's been calculated. For stocks where we don't have a natural mortality rate, I believe we're proposing to use the most conservative value on that Alternative 3. All the other alternatives are fairly fixed values.

If we go to Action 2, which is the MSY proxies, you can see that Action 1, again, is no action. We don't have it defined, and we

wouldn’t define it until we needed to, on a case-by-case basis. Alternative 2 would state that the proxies that have previously been defined shall continue to be, as in Table 1.2, and I think that addresses the issue that you were looking at. They are very closely related, but we split them up into two actions.

For other stocks, it says that the MSY proxy would be the yield when fishing at F30 percent SPR, and that would apply until otherwise defined. Alternative 3, again, if we already have a definition listed, that would continue to be in place. Otherwise, it would be the proxy when fishing at F40 percent SPR.

We included that because that is generally the range that’s recommended, 30 to 40 percent, although 40 percent, if we use it at all, we usually use it more in the context of optimum yield than MSY, but we wanted to include that as an alternative, to provide a range of alternatives.

Then Alternative 4, this is the exceptions, or ones where we want to do something different from what’s in the above alternatives. Do we want to adopt a different SPR? I’ve got three stocks in here. We could add more or we could take some of them out, but red snapper, as I said, that was one of the stocks that we had a specific concern with.

The council -- I don’t know if they’re still interested in doing this, but, at one time, they were interested in changing the SPR proxy for MSY, and they actually directed us to start an amendment to do that, and so we folded into here, and that’s that Option 4a.

Right now, we’re using F26 percent SPR. Sub-Option 1 would make it a little bit more lenient and go down to F23 percent SPR, which was the result corresponding to MSY under the linked MSY analysis that was done last year. Sub-Option 2 would go and be more consistent with most of our stocks. It would be the yield when fishing at F30 percent SPR. You will notice I didn’t put in the 12 percent option here, even though I wanted to. Option 4b deals with --

CHAIRMAN BARBIERI: By the way, I’m so glad that you didn’t, because, just the stress of this discussion, I already had a chocolate chip/M&M cookie, just to raise my serotonin level back to -- That would have been another cookie, and I don’t want to go there.

MR. ATRAN: Moving on. Option 4b, vermilion snapper, the

default, at least as I can figure, our official default is not having a proxy, actually using FMSY. We've got two options, sub-options, either redefine it as Fmax or redefine it as F30 percent SPR. Those seem to be two valid choices to choose between. A lot of the discussion that went on today, I think, would fall into where we would go on that.

Option 4c gave the IPT a little bit of concern, goliath grouper. The default is undefined officially, although the maximum fishing mortality threshold is F50 percent SPR, and so that's why we have sub-options to either set at 30 percent SPR, as with other stocks, the biomass proxy, or set it at the yield at F50 percent SPR, which would be consistent with the maximum fishing mortality threshold, but the problem is, since all we have are these catch-free models, we don't have any way to assign any actual numbers to these values.

Our IPT thought that might be a problem, that you might need to have some way to assign an actual number to the goliath grouper MSY proxy. I don't think we have any way to do that. All we can do is maybe use a formula as a placeholder until we do have it, but, if anyone has any other suggestions, I am open to them.

Basically, this was, as I said, designed to get MSY proxies and minimum stock size threshold definitions in place for all of our reef fish. The ones where we already have them in place, maintain them, unless we wanted to change them, which I think we want to do with vermilion snapper.

I had thought about adding an Action 3 dealing with the optimum yield issue we just discussed, but probably not, based upon the discussion that we had here. We will probably keep this just the two sets of alternatives, unless the council decides to expand it.

We are proceeding with developing this. This is a little bit more developed than the last time you saw it, but not a whole lot more, and so, really, I guess we're seeking guidance from the SSC on if you have any ideas on an appropriate way to go with either of these actions or if there's anything else we need to consider. We're all ears.

CHAIRMAN BARBIERI: Thank you for that, Steven. Any comments or suggestions or questions from the committee regarding the current state of this amendment, draft amendment?

Steven, I have a suggestion. I mean I think it's difficult for us -- I mean if you're talking about maximum sustainable yield

proxies, I think it's difficult for us to weigh in until we have a better idea from the council about what their management goals are for different stocks. I mean maximum sustainable yield should be conditional on selectivities of different fisheries and so, depending on how conservative the council wants to be relative to -- I mean what are they really looking for in situations where we don't have an MSY, we don't know what MSY is, and we are using a proxy as sort of like a placeholder in those situations?

In some situations, they might be wanting long-term stability, where you avoid those episodic high peaks in recruitment, that's what they value the most. In other ones, they might be saying, well, maybe we don't care about that, we don't mind, and so we can actually take advantage of those peaks in recruitment and actually harvest those things.

I think that, even though this is informed strongly by the assessment, as far as some of the results of the assessment will have an implication here, but the choice of the proxy, I think, in this case, because it is a proxy, it can be more aggressive or less aggressive, more conservative or not, I think. I will put this out there for discussion. Yes, Steven.

MR. ATRAN: You're absolutely right when you talk about many of these being placeholders, and I suspect, on a lot of the stocks that we have, we're never going to get a stock assessment on, and so this may never come into play, but, if we do -- This has come into play on a couple of occasions, where we've gotten a stock assessment for the first time and the SSC and the Science Center has to decide, is this an overfished stock? It depends upon what proxies we're using, and, if there is no predefined proxy, then the scientists need to make what amounts to, in some cases, a policy decision and hope that the council goes along with it.

This is designed to try to take that uncertainty out, so that you have something to go on the first time you do a stock assessment, and then, in the future, when you do supplemental assessments on these stocks. The other reason, which is probably trivial from your point, is to bring ourselves into compliance with the Magnuson-Stevens Act and the National Standard Guidelines that say that we need to have status determination criteria for all stocks that are managed.

CHAIRMAN BARBIERI: My point about that comment is, thinking about the F26 percent SPR, this is one of the few, if not the only, examples where this actually kind of came up analytically.

I mean most of the other ones, we basically use these step-wise sort of choices based on experience, our experience in looking at the performance of different fisheries over time in different areas, and we say, okay, we kind of need to have this goal of having this much spawning stock biomass left to make sure that we don't increase the risk of some recruitment failure going into the future, because we don't know the stock-recruitment relationship.

Red snapper is different, because when you're trying to do that accommodating of all the different fleets and kind of finding that optimum level of SPR that I think is balanced across all of those different fleets, and I guess, in this case, including the non-directed fisheries as well, you end up there.

DR. PORCH: In that case with red snapper, I mean it has a long history, even predating the 2004 or 2005 assessment, but the logic there was if you compute the maximum yield per recruit in a way that you can scale all the fisheries up and down, the so-called MSY linked or Fmax linked scenario, including the bycatch fishery, that should be sort of a minimum SPR that would be associated with the MSY.

I mean the reality is that it should be somewhat bigger if there's a spawner-recruit relationship, but it should be kind of a minimum value, and I think, at the time, it came out -- In 2006, it was 26 percent. Later, I think when we recalculated it in the same way, it was something like 24 percent, but the point was that it should be like a minimum estimate of what the SPR that corresponds to the MSY, because it's not taking into account any dependence of recruitment on spawners. Usually, Fmax is sort of a minimum for what MSY would be, or, sorry, a maximum F of what MSY would be.

That's how that logic came about there, but I guess I do want to comment that picking an MSY proxy isn't really a policy decision. It is a science decision, because the MSY proxy should be a metric that you expect, based on the science, would come closest to the true FMSY. It's not a risk-based decision. It's saying when you select a proxy, the SSC and whatever scientists are participating in the discussion are trying to determine an F proxy that is most likely to be close to the true FMSY.

MR. ATRAN: I actually agree with you, but the NOAA attorneys don't. According to their interpretation of the Magnuson Act and the section that says contents of fishery management plans,

it’s the council’s job to decide what proxy to use for MSY, and I guess there is some policy decision. If you don’t know what MSY is, how conservative or how non-conservative do you want to be in assigning a proxy?

CHAIRMAN BARBIERI: If I may add to that, I mean I think the case is whether you get their analytically or not. I mean if you’re picking a number to say -- For example, 50 percent SPR for goliath grouper. We kind of come up with some assessment of what we believe is the vulnerability of that stock to the fishing mortality, given life history characteristics and whatever, and we basically make a choice, but that’s not necessarily where we would obtain the maximum sustainable yield.

I mean I don’t see many cases of us being able to develop that analytically for situations like this, when they are not just coming out of the assessment, where you have a valid estimate of MSY and you can look at what the corresponding SPR proxy -- How those two would relate to each other.

DR. PORCH: There is a subtlety here, and I am not sure whether the NOAA attorneys appreciate it or not, and so, having not been engaged in the conversation with them, but, when you pick an SPR proxy, for example, it’s based on the life history of the animals.

You’re saying a fish with this particular life history, if you look at other examples where MSY was calculated, what SPR corresponded to that, and, typically, it’s in the 20 to 50 percent SPR range corresponds to MSY, and it varies with the life history of the animal.

That’s the logic that is usually used in picking SPR proxies, and that’s a science decision. If you’re saying that itself is the analytical process, then I agree with you, but if the analytical process is limited to the idea that cases where you could compute MSY because you know the spawner-recruit relationship, then I wouldn’t agree, because then you could make any arbitrary MSY proxy, because, in almost all of our stocks, we don’t know what the spawner-recruit relationship is. I think it should be a scientific decision based on the life history of the animals.

CHAIRMAN BARBIERI: Yes, Steven.

MR. ATRAN: Actually, to that point, I don’t think there is anything about this in the current draft of this amendment. Back in the late 1990s, when we were putting together that

Sustainable Fisheries Act Amendment that ultimately got only partially approved, we did convene two finfish stock assessment panels to explicitly go over the life history characteristics of all of our stocks and make recommendations, and they did it pretty much on a species-by-species basis, although, for the most part, most of them, they said let's use 30 percent SPR as our MSY, and I forget what they addressed for MSST, but they did do more or less what you're talking about, look at what they knew about the stock, about its vulnerability and other factors.

As I said, the biomass proxies were rejected by NMFS. They said you can't use a straight SPR as a biomass proxy. Once we changed that and said the yield when you're fishing at that proxy or the resulting biomass when you're fishing at that, that's been accepted, and so we could go back and just look at the arguments that we used and the recommendations that we used in that 1999 generic amendment. The only thing is that was seventeen years ago, and so it would be a little hard to say that that is the most recent biological information for most of the stocks, although it may be.

CHAIRMAN BARBIERI: I was in high school then, and so -- Anyway, I think I am leaning towards more of the National Standard approach for looking at proxies, that they are primarily non-analytical and just sticking with that, in a way, and then saying, well, let the councils make a recommendation in terms of being risk averse or risk prone, given the fact that we don't know where MSY is, but there are other ways to get there. Clay.

DR. PORCH: I just want to point out that the National Marine Fisheries Service itself recognizes that none of the councils have been that consistent in their use of proxies, and so we looked across what was being done and we addressed it at the national stock assessment workshop, and the recommendation from that is we need to do a little more work, a little more homework, analogous to what you're referring to, Steven, with the generic MSY proxy stuff that we did back in the 1990s.

Basically, refresh that and update it and what's the latest view on what's an appropriate proxy, given whatever information that you have, and hopefully that national stock assessment workshop will kind of spur some additional research.

The plan is, although it's not been formalized yet, but the plan, in Rick Methot's mind and several of us who participated, is to actually convene some workshops to develop best practice guidance, and so hopefully that will happen in the next year or two, but it's not going to be a fix for tomorrow.

MR. ATRAN: An idea popped into my head. I'm not that crazy about it, but do you think that perhaps we ought to form a new reef fish -- I don't know if assessment panel would be the right term, but a new working group to review the proxies for our reef fish status determination criteria? The reason why I say I'm not that crazy about it is, because every time we form a new workgroup, it tends to slow things down, but, in this case, maybe we could get more useful information that would be worth it.

CHAIRMAN BARBIERI: I read this as indecision as to what the proper answer would be, and I so wouldn't necessarily -- It's something that perhaps we need to discuss a little more and see how we decide to proceed. Leann.

MS. BOSARGE: As a council member, I would like to, at some point, get some good feedback, especially in regards to red snapper, from this body. Then the council can chew on that and make a decision there, rather than leaving it completely a management or policy decision, as you were kind of discussing.

I go back simply to the conversation that was had yesterday, where you're talking about SSC and council members kind of being one and the same, possibly, and there was a comment made that, well, in this room, at this table, I would probably vote one way and then -- Not me personally, but then once I got to the council table, because of other influences and pressures, I may vote a different way. They said that might cause them to lose sleep at night, but, if you can imagine that in this situation too, I think it would be good for us to have a little bit of information from you all as to your leanings and thoughts and back-and-forth discussion on things at some point. If that's a working group or whatever you think is the best way to do that or just at a later meeting, but I think I would feel better if I had a little more input at some point.

CHAIRMAN BARBIERI: Personally, I think that weighs a lot on my mind. It's something that we can help inform the council on one of these issues, and so I would say that we should be discussing, not necessarily here now, but perhaps we can set this up as something that we can discuss at our next meeting or, in preparation for our next meeting, they will be putting together some kind of working group, and I think it should extend beyond -- It should include Science Center folks and perhaps SERO and council members, to be more integrated from different perspectives that would generate the right amount of differences of opinion and discussion points on this. Having

heard nothing else, I think that, by and large, everybody is in agreement with this.

MR. ATRAN: So the -- I'm not really hearing if there's definitely a consensus, but there is a consensus to begin working on developing of a working group? At this point, we're not ready to actually assign people and start leading, but working on what the makeup of it should be and what their objectives should be?

CHAIRMAN BARBIERI: I mean I personally would like to see this as an agenda item for our next meeting, that we can discuss this in more detail. It would be good to have some kind of a little discussion on this that would be -- Perhaps those previous documents can be distributed as part of our -- I have them, just because I got them from people. As soon as I got out of high school, I got a copy of those documents, but it's kind of something that I think would be helpful in going into our next meeting.

MR. ATRAN: I have some of them on floppy disk.

CHAIRMAN BARBIERI: Does this conclude then? This might be the conclusion of Agenda Item Number XX, which leaves us with Other Business. Mary.

REEF FISH OTHER BUSINESS

DR. CHRISTMAN: Did we do XII, Red Snapper? Did I somehow miss that?

CHAIRMAN BARBIERI: You may have.

DR. CHRISTMAN: I was here.

CHAIRMAN BARBIERI: By the way, Mary, this is why I always associate these meetings with those cookies and coffee. We need these types of fuel and serotonin-inducing supplements as food for the brain.

MR. ATRAN: Just to give you the ten-second review, the SSC discussed two ways of addressing underharvest, either reopening a supplemental season the same year or carrying over unused harvest to the following year, which would require that the SSC reevaluate ABC. The discussion was that carrying it over would probably be the better way to go, but there's still a lot of issues to be worked out on that. That seemed to be the recommendation.

Mr. Chairman, before we finish up entirely, I didn't put it on the agenda, but one of the items that was in your package, and I think it's under "Other", is the tentative committee meeting for the upcoming committees, and I believe there's also a bunch of printed copies of this on the back table.

It seems as though every meeting we get somebody, a few people, calling and saying when is the next SSC meeting scheduled, and so, as you can see, we're just completing our June one. The next one is scheduled July 26 to 28. We schedule them for three days and then expand or contract them as necessary. Then, after that, September 27 to 29.

We, in the past, have had a meeting in January, before the January council meeting, but Doug felt that it would be more appropriate to hold that meeting in December, before we get into the holiday season, rather than having everybody come back still kind of hung over from the holidays, and so we have one scheduled for December 13 to 15.

If anybody knows that you're going to have a conflict, please let me know as soon as possible. Send me an email. If there's too many people who can't make it, these are all tentative dates, and we can consider changing them, but these are the dates that we're looking at as of right now.

For the next meeting in July, the things that I know are going to be on it are we are getting a goliath grouper benchmark assessment to review and we're also -- It's time to come up for election of Chair and Vice Chair, and so anybody who might be interested in filling those positions, you might want to think about that. It sounds like we also added a discussion of a working group for status determination criteria.

SSC MEMBER: Just a quick question. Do we know where the July one will be yet and how far in advance that's unusually set on the location?

MR. ATRAN: It will be in Tampa, unless you hear otherwise. I guess we have some budget issues with going out of town. In this case, we also had, because we had another meeting going on at the council office, our staff was stretched pretty thin right now, and we've got some folks who -- I don't know if we're doing public hearings this week or not, but we just got back from doing public hearings, and so our staff has been stretched pretty thin.

I would still like to get you guys into the council conference room. We just expanded it, and we've got a little bit more desk space now, and so we may be back in the council office for the July meeting, but, as of right now, it is scheduled to be in Tampa. Again, that is tentative.

CHAIRMAN BARBIERI: Okay, and so noted that this is our tentative schedule and, as Steve mentioned, let's see if we can provide him with advance notice if folks cannot make it to these meetings as scheduled, and he will try to see whether rescheduling is in order. Any other open agenda or other business items?

Seeing none, I think that we are finally ready to adjourn the June 2016 meeting of the Gulf Council SSC. Many thanks to staff and committee members and Science Center folks who have helped us, and, of course, our phenomenal council liaison for helping us have what I believe is a very successful and productive meeting. Travel safely back home, and I look forward to seeing you all next time.

(Whereupon, the meeting adjourned on June 2, 2016.)

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