SOUTH ATLANTIC FISHERY MANAGEMENT COUNCIL

SCIENTIFIC AND STATISTICAL COMMITTEE

Crowne Plaza Hotel
North Charleston, SC

April 28-30, 2015

SUMMARY MINUTES

SSC Committee

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Dr. Scott Crosson
Dr. Tracy Yandle
Dr. Sherry Larkin
Dr. Carolyn Belcher
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Jason Didden
Dr. Mike Larkin
Dr. Cynthia Jones
Dr. Lance Garrison
Dr. Peter Barile
Dr. Nick Farmer
Joe O'Hop
Jennifer Lee
Dr. Kevin Craig
Rusty Hudson
Dr. Mike Schmidtke

Other Attendees Attached

TABLE OF CONTENTS

The Scientific and Statistical Committee of the South Atlantic Fishery Management Council convened in the Crowne Plaza Hotel, North Charleston, South Carolina, Tuesday afternoon, April 28, 2015, and was called to order by Vice-Chairman Marcel Reichert.

DR. REICHERT: Welcome to the SSC meeting. For those listening, I'm Marcel Reichert. I am the Vice-Chair of the SSC. Luiz Barbieri is on route. He is expected to be here around 2:00. What we'll do is we'll see if there are any changes in the agenda, we'll approve the minutes, and then we'll have our introductions.

In terms of the agenda, are there any changes in the agenda or any questions about the agenda? We have a full agenda. I am scheduled to give the Fishery-Independent Reef Fish Survey Update later today. I am a little flexible; so if we need a little more time, then we can move that presentation to elsewhere in the SSC meeting, but we'll play that one by ear. That provides us with a little bit of flexibility here. Are there any remarks, changes, or edits to the minutes that were distributed in the briefing book? Seeing none; then I would like to start with the introductions.

DR. GRIMES: Churchill Grimes; SSC.

DR. BUCKEL: Jeff Buckel; North Carolina State University.

DR. SEDBERRY: George Sedberry; NOAA Office of National Marine Sanctuaries.

DR. CROSSON: Scott Crosson; Southeast Fisheries Science Center.

DR. CADRIN: Steve Cadrin; University of Massachusetts.

DR. ERRIGO: Mike Errigo; South Atlantic Council staff.

MR. CARMICHAEL: John Carmichael; Council staff.

DR. REICHERET: Marcel Reichert; South Carolina Department of Natural Resources.

DR. SMITH: Will Smith; North Carolina Division of Marine Fisheries.

DR. YANDLE: Tracy Yandle; Emory University.

DR. VAUGHAN: Doug Vaughan; retired, SSC.

DR. SCHUELLER: Amy Schueller; Southeast Fisheries Science Center.

DR. JOHNSON: Eric Johnson; University of North Florida.

DR. BOREMAN: John Boreman; North Carolina State University.

DR. LARKIN: Sherry Larkin; University of Florida.

DR. WHITEHEAD: John Whitehead; Appalachian State University.

DR. REICHERT: At the beginning and at the end of the SSC meetings, there is an opportunity for the public to comment; so I'm asking if there are any members of the public who would like to comment.

MR. HUDSON: Rusty Hudson representing the Southeastern Fisheries Association, East Coast Fisheries Section. Last week we put together a written comment, and I believe it has been circulated to everybody. So just to touch on the high points of the subjects; we had six that were illustrated on Page 1 about the critical habitat, black sea bass with regards to Regulatory Amendment 16.

The second item was the Oculina Evaluation Team Report Review. The third was the SEDAR activities and stock assessments. The fourth was the Science Center Headboat Data Evaluation Report. The fifth was consideration of stock triggers or rumble strips. The sixth was the stock assessment science program review.

I apologize for the failure of not listing the golden tilefish need for a stock assessment. That is the last page of the written comment; and then the final item on the ABC Control Rule. In December 2014 we sent a communication to the SSC regarding reassessment of the productivity and susceptibility analysis, the PSA, and the ABC Control Report to the South Atlantic Council.

We would like to see reconsideration of the MRAG classification of all South Atlantic stocks as high risk for overexploitation presently. It assigns an extra 10 percent P-star penalty especially to stocks that are not overfished and overfishing is not occurring. We would like to see that changed so that we could get a little bit more allocation out of them as a result.

Thank you and any sidebar would be appreciated. Also tomorrow you will be dealing with the Amendment 36 for special management zones. We do have a written comment in construction. As soon as I can make it available, then I would like to pass it around so you can see what our thoughts are at this stage.

DR. REICHERT: Are there any other people that want to make a public comment? Seeing none; then let's move on to Agenda Item 3, 2014 landings and ACLs. The action of the SSC is to review and comment with attention towards the ABC recommendations and updates and consider assessment schedule and research plan implications. A little while ago we checked to see if Mike Larkin was on and technology worked. Mike Larkin is with SERO. Mike, go ahead with your presentation.

DR. LARKIN: First I made a mistake; I should have included my co-workers. I want to acknowledge Katie Hayslip from the Southeast Regional Office as well as Mike Judge and Heather Balchowsky from the Science Center, who really helped me with this. But, anyway, so first I go over the commercial landings, and then I'm going to go over the recreational landings. I also want to make the point that all these landings, both commercial and recreational, are preliminary. None of this stuff is final at this moment.

But the commercial landings, they were summarized; the latest data summary was in April of 2015. It is important to note that the landings were bimonthly, were monitored in-season bimonthly last year in 2014, until August of 2014; then dealer reporting switched from bimonthly to weekly. That weekly is a big advantage there.

We can really keep on top of the landings much better than the bimonthly. To give you guys just a quick example of how we did it before, bimonthly; so before August in 2014, the dealers were required to report landings from the 1st to the 15th of every month. Then they had a five-day grace period, January 1st to January 15th.

The landings were due by January 20th, and there is some processing time with the science center, two or three days. I guess I am trying to say the old method you could have landings at the beginning of the month; but really you don't really know what those landings were until you get closer to the end of the month.

The weekly reporting will let us keep track of the landings much better than we did before. Landings were compiled and provided by the Southeast Fisheries Science Center, and they are assigned by fisher-reported catch rather than gear location. I also want to say monitoring these landings, it is very dynamic. We do expansion and projections models based on historical trends.

We know things can change. For example if you're monitoring Species A and the catches were low and then all of a sudden Species B has a closure, you may get all the effort from Species B will switch over to Species A; and then their landings will explode and then you may not catch it in time and they will exceed the ACL.

If you go to the next slide, I have over here in that far left column is the species' complex. Then by columns are the landings in pound, the 2014 ACL, the units whether total weight or gutted weight or in some cases numbers. The next column is the percent of the ACL, and then the closure date if we had one.

You can see the ones in yellow I highlighted there are the ones that exceeded the ACL. Blueline tilefish was a classic example where last May – so this is one we are still doing bimonthly reporting. The landings were relatively low up until May, and then they just exploded. Then by the time we got that data and the guys were really able to collect it all, then we realized they exceeded the ACL, and that is how you get that 42 percent overage.

I just want to point out each stock is just constantly a never-ending battle I guess with the Science Center monitoring these landings, because there are different issues with each stock. Like dolphin, for example, in 2014 there were a lot of landings that were reported as dolphin fish instead of dolphin.

Originally those landings were missed, but then we realized that there was a whole bunch of landings for dolphin fish. Then by the time you add those in, you could see they were 30 percent over the ACL. Your golden tilefish hook and line went 2 percent over, which I think is a bulls-eye; I think so close to the ACL. Then golden tilefish longline, there was an issue with that one where this is the first year that they separated the hook and line from the longline, and the dealers were reporting the landings – actually they weren't reporting gear at all.

Early in 2014, for example, the Science Center found a trip where there was 4,000 pounds and actually it fell under the category of hook and line, because that was kind of the default setting. Then they dug in and found out that was actually a longline. Anyway, we corrected that issue; but you could see by the time you correct for it, you end up with 39 percent over the ACL for the golden tilefish longline, using the longline gear.

Then again you can see in this case jacks, red snapper, and snowy grouper were over. The jacks was another case where the landings were relatively slow and consistent; we had projection models to monitor them. But then back in June, there was an explosion of landings going on there; so by the time you catch up to it, the landings exceeded the ACL.

You see most of these, the yellow ones that I highlight here, most of these occurred when we were still doing the bimonthly reporting. The weekly will certainly help us keep better track of the landings. Red snapper is certainly a little bit of a derby behavior going on there. It is a very short season; I believe it opened up in July. That one did go over by about 11 percent.

Then snowy grouper looks like went over by about 10 percent there. Vermilion snapper, you can see it looks like about 12 percent more from – that one is actually split into two different seasons, so January to June and another six month one from July to December. Those we kept track on, but you can see that both of them went over, one by 12 percent and one by 5 percent there.

Then these are the ones that have the unique seasons. Instead of like a calendar year, like greater amberjack May through April; and then black sea bass June through May; both of these turned out quite well. You've got 99 percent in both cases of the landings relative to the ACL. Again these are all preliminary, but the 2014/2015 season you can see that the seasons did change a little bit, so they're a little bit shorter because of Regulatory Amendment 14; whereas, now amberjack is from May to February and black sea bass is June through December 31st. Anyway, the ones we have so far are preliminary and both of them are below their ACL.

In this case Spanish mackerel had a 3 percent overage, but that is the 2013/2014 season; and because we got groups in stock assessment, that age zero actually went up. If you go to the next season, you can see it is 3.1 million; and then it went up to – if you go to the next slide you'll see 3.3 million. It will be able to go up a little bit more; and currently the 2014/2015 landings, both the king mackerel and Spanish mackerel are below the ACL.

Now I'm going to go into the recreational landings; again this is preliminary landings. These landings were summarized in March of 2015, best data we had available by the Southeast Fisheries Science Center. Landings were summarized using MRIP or the MRFSS, which the MRFSS was actually calibrated from MRIP, depending on how the ACL is calculated. The MRIP/MRFSS landings are available 45 days at the end of a two-month wave.

For example, if you have a January to February two-month wave, then about mid-April is when you expect those landings to be complete. Unfortunately, we had a delay this year. I was expecting to have a little bit more finalized data for this presentation, but that wasn't available; but typically we get it 45 days before the end of the wave. These landings also include the MRFSS and MRIP as well as the headboat landings too. Landings are updated by NMFS SERO to be consistent with the ACL monitoring. Post stratification is an issue. Some stocks like gag grouper – most of the recreational landings, the Monroe County landings are assigned to the Gulf of Mexico; but with black grouper and gag and some other stocks, the actual Monroe County landings are given over to the South Atlantic.

We always make sure we take a close look at that while we're summarizing the recreational landings. This is a summary of the stocks here. Now, the way it is currently set up right now in the South Atlantic, except for black sea bass, red grouper, and golden tilefish, those ones have in-

season monitoring for their recreational sectors; but the other recreational sectors of the South Atlantic, we wait until they exceed the ACL, and then the following year we monitor it closely.

That is why you see Atlantic spadefish. Probably a little bit over midway through 2014, we knew they exceeded their ACL, but the way the accountability measure is set up we wait until it exceeds the ACL. Then the following year we watch it closely. If we think it is going to exceed it, then we close it.

But there is a generic accountability amendment in place, which I'm guessing will be implemented in the next six months. That will make all the recreational sectors have in-season monitoring. We don't have that at this time, but we will in the future. But, anyway, Atlantic spadefish had two months of very high landings and you can see way over the ACL.

Gray triggerfish actually had a closure; because in 2013 the landings exceeded the ACL, I believe it was about 5 percent. We did monitor it closely in 2014, made some predictions that they would hit the ACL on November 26. It was close; but most of these stocks, the states will follow when we close in federal waters, the states will also close in state waters. In gray triggerfish one exception was it was closed in federal waters on November 26, but it remained open to the end of November and in December in state waters.

That contributed, not a whole lot, but certainly when the state water is still open, it still counts against the ACL, so that still adds some additional landings to make it above the ACL. Hogfish had one wave that was extremely high, but anyway hogfish is 23 percent over, so we'll monitor that one closely the following year.

All these that exceed their ACL next year, we'll watch them closely for in-season monitoring the following year, as well as black sea bass, red grouper, and golden tilefish. Those three have in-season monitoring no matter what, so we'll always follow those closely. Then in this case snappers; snappers was an interesting one where we were below the ACL all year; but then when we go the final landings for Wave 6, which is November and December, then we found out they exceeded the ACL by the time we compile everything.

They actually did go 17 percent over; but they actually exceeded – snapper is a tricky one – they exceeded it in 2013, but the early predictions we had for 2014 where the landings were a little bit lower, and they were not predicted to exceed the ACL; but then they snuck up on us at the end of the year and did exceed the ACL. We'll watch that one closely in 2015. This is the recreational side of those 2013/2014 seasons for greater amberjack and black sea bass. Both of these are below. You can see the black sea bass has, compared to what we had historically, quite a large ACL there, and they are only about 56 percent of the 2013/2014 preliminary landings.

Again, these also as I mentioned earlier with the commercial about Regulatory Amendment 14; it modified the season of the 2014/2015 season for both greater amberjack and black sea bass, so you see it is a little bit shorter. Greater amberjack is now May to February 28th until the new season kicks in and black sea bass June to March 31st.

You can see that currently right now in preliminary landings, both of these are also below their ACLs. King mackerel and Spanish mackerel, again both of them; recreational side, both of them are below the ACL. Again for the current 2014/2015 season what we have so far, both of them

are below their ACL. I rambled through it pretty fast there, but I would be happy to address any questions.

DR. REICHERT: We appreciate that update, Mike. Any questions?

DR. LARKIN: Okay, I hope you heard me.

DR. REICHERT: Yes, we heard you loud and clear. Any questions from the SSC? I had one question. Hogfish, based on the last assessment, there are now three populations that we discussed. Will the landings be presented for those three areas to follow the landings by population?

DR. LARKIN: If I understood the question correctly – I apologize it is a little broken up – you are asking if the landings will be assigned – because they are saying I guess the South Atlantic is split because there is a Carolina stocks and also a south Florida stock. Is that what you're asking, if we'll actually have the ACLs to match that? Is that what your question is?

DR. REICHERT: Exactly.

DR. LARKIN: That's a good question. I think we will, but can I look into that and get back to you, just to make sure I'm not lying to you? That's a great question. Off the top of my head, I can't remember how we're dealing with that one, but I could look into that and let you know.

DR. REICHERT: Yes, that would be good; I appreciate it.

DR. CHEUVRONT: Mike, this is Brian Cheuvront. I noticed that you had showed the commercial landings of dolphin as having exceeded the ACL. I just went on to the NMFS landing website, and it shows the old ACL for dolphin.

Dolphin Wahoo Amendment 5 increased the commercial part of the ACL up to over 1.5 million pounds. I just e-mailed Nick Maida and asked him to check for me what the effective date of Dolphin Wahoo Amendment 5 was, because I couldn't find it right off hand. It might be that in fact last year dolphin did not exceed its ACL commercially.

DR. LARKIN: You're saying that we have the old ACL value is what I'm comparing it to; is that what you're saying?

DR. CHEUVRONT: Yes; and the old ACL is still currently up on your website, and I know Dolphin Wahoo 5 has been accepted. For your tracking of landings for this year, you still have the old ACL up there. I just checked that.

DR. LARKIN: Okay, thank you. That is a goof on my part then for not confirming that. I'll talk to our website people and definitely have that updated.

DR. REICHERT: Anyone else? Seeing none; I appreciate the update, Mike. We can discuss the information relative to the assessment schedule. I want to remind you that we have another opportunity to talk about the SEDAR schedule under Agenda Item 7. John, do you have any –

MR. CARMICHAEL: Yes, we'll talk about the schedule then and these couple of preliminary items could affect how you prioritize stocks. That is why we're going through these first. If you had any issues you wanted to put up now to make sure we consider within the big picture of a scheduling, then we can make note of them here.

DR. REICHERT: Any suggestions from anyone at this point? As I said, we'll come back to the schedule under Agenda Item 7. Mike, thanks again, I appreciate the update.

DR. LARKIN: Okay, I'll get back to you on the hogfish issue.

MR. WAUGH: I was just explaining to Marcel that once the councils have their amendment that recognizes those three stocks of hogfish and that is implemented, then NMFS will start tracking it according to those boundaries; but until then it remains the existing boundary.

DR. REICHERT: Thanks for that clarification. Chairman Luiz Barbieri arrived. I'll hand the meeting over to you.

DR. BARBIERI: Thank you very much, Marcel. I think we are up to Agenda Item Number 4; spiny lobster review panel recommendations. I believe that we are going to have an overview from staff, John. Then I bring to your attention action items for us to consider, which is the assessment schedule and research planning implications.

As John just explained relative to the ACL tracking, this item might be influencing the SEDAR schedule or our research plan recommendations. We would like to get your input on those items. I will then pass it on to either John or Kari, who will actually give us an overview.

DR. MacLAUCHLIN: Okay, I'll go ahead and get started. This is Attachment 2 in your briefing book. It is the spiny lobster review panel summary. In February the councils convened a review panel. This is actually the accountability measure for spiny lobster. If the ACT, which is 6.59 million pounds, was exceeded, the councils would convene a review panel to get together, see what's going on and make any recommendations for actions or anything else for the councils.

In the 2013-2014 fishing year landings actually went over the ACT, the ACL and the OFL. Just going over the ACT triggered this meeting, so we put together – it was council staff from Gulf and South Atlantic, folks from the Regional Office, folks from FWC, and then we had representatives from advisory panels on both councils. Then we had George Sedberry and Sherry Larkin came from the SSC.

We also had several local folks and fishermen in the audience there. We reviewed landings, prices, discussed fishery conditions, talked about biological factors and basically the question was is this a problem; and if so, then what are the recommendations? The overall recommendations of the panel were they did not recommend a new stock assessment.

They didn't feel that we could get any new information by the way that the stock assessment would be done now. They concluded that the ACL is not the correct methodology to manage a fishery like spiny lobster. It is not an annual crop, but there is a lot of external recruitment. It has a unique life history that is different from most federally managed species.

They recommended the OFL be redefined as the MFMT. We took those back to the councils; the March meeting for South Atlantic and the April meeting for the Gulf Council. Also because landings had exceeded the OFL, the councils received a letter from NMFS letting them know – in most cases if you exceed the OFL, then you have two years to take action.

However, in the 2014-2015 fishing year, this past year, landings were very much below even the ACT. Then the question became, okay, if you go over the OFL in one year and then the landings go back down the next year, do you still need to take action? What NMFS said was they notified the councils that the OFL was exceeded, but that this would just be monitored and in the future there may be action required if the OFL continues to be exceeded.

For now we don't have any action or anything really for you guys to comment on with this. We will see what happens in the next years. Maybe the 2013-2014 fishing year was just a good year for fishing or a good year for effort or the market, and it will just go back to what it was before, which was between 5 and 6 million pounds. But if not, then we can look into different management measures. Both councils did request that staff draft a letter to NMFS requesting exemption from the ACL requirements. We're putting that together.

DR. BARBIERI: Any questions or comments from the committee?

DR. BOREMAN: The OFL; the recommendation is to go in years the MFMT; what is the current OFL based on?

DR. MacLAUCHLIN: I don't know off the top of my head. I need to look and get back to you on that.

DR. BARBIERI: The OFL is usually defined in terms of weight in harvest yield. In this case they are requesting that it be defined in terms of fishing mortality. Instead of having the MSST and then you go with an ABC and an ACL; in this case you would be defining the OFL based on a fishing mortality rate instead of a yield.

DR. BOREMAN: I guess that is what caught my eye on this, because you are talking apples and oranges in a way, because OFLs are usually based on – overfishing limit is usually based on pounds or metric tons and not on a rate. The rate times the current stock biomass gives you the OFL. In this case they are saying just forget about the middleman; just go right to the MFMT, or whatever you want to call it, the fishing mortality rate and use that; not to calculate OFL, but that is the OFL. Interesting, because that is basically, in my mind, changing the definition of OFL.

DR. BARBIERI: Any other questions or comments for Kari? Hearing none and given the nature of your report, Kari, I think we are done with this topic. No action is required; and since the recommendation of the panel was that we do not proceed with the stock assessment, this should not be influencing unless there are people in the committee that disagree with that recommendation, that we will not proceed with our next stock assessment for spiny lobster. That should have no influence on our SEDAR scheduling that way.

That brings us to Agenda Item Number 5; MRIP calibration and transition update. I think John Carmichael is going to present us an overview of the calibration workshop that was held last year and some of the actions that the agency is taking in regards to MRIP calibration. Again, I bring

to your attention the action items that are related to this agenda item; consider assessment schedule and research plan implications.

MR. CARMICHAEL: Yes, we've talked about the calibration effort that was underway, the workshop held back in September. The report was recently completed. You were given a copy of that just to see what calibration was recommended. Some of those things were taking time to work out, so they are underway now.

The bigger issue that has been going on since then deals with the transition into the new access point survey, to the new effort survey, moving away from the telephone component. Where that stands now is there has been a group working on that and developed recommendations over the last six months, perhaps longer, and report to the NMFS leadership.

What we're showing here is the timeline that is intended for the survey. There are side-by-side efforts going on right now between the new method of doing the survey and the old telephone method of doing the survey. The side by side is going to go on in 2015, 2016, and 2017 to maintain continuity; and then as you see during 2016 and then 2017 start developing the calibration for that component of the survey; with the date that really starts to affect us here being there in 2017.

Where it says July and October 2017, you start having the re-estimated historical data available to go in the stock assessments. The thought is then in late 2017 we'll start having the information available to do stock assessment updates using the revised estimates. There will be regulations in 2017 obviously based on the methods that were in place up to that point; and so you'll still have the consistent methodology of the telephone survey in 2017.

Then we'll have the new numbers to start folding into the stock assessments. What we're thinking from the SEDAR perspective is it may very well affect the stocks that we decide need to be assessed in 2017 and 2018. There may be a need to do a number of updates. There may be an opportunity to update, do sort of continuity runs maybe with just the new recreational data has also been discussed. Obviously we have a little bit of time to work out what that means; but we do need to be planning ahead. If we decide to put effort into updating a bunch of species for this new recreational data, it will certainly impact what we do in terms of benchmarks.

DR. BARBIERI: Comments or questions from the committee?

DR. REICHERT: I think by that time it will be very useful to see a comparison with the new and the old data, because I think perhaps priority should be given to those species that show the highest difference between the old calculations and the new calculations. That may help us setting priorities in addition to looking at other issues.

DR. BARBIERI: Any other questions or comments from the committee regarding the MRIP calibration update?

DR. BOREMAN: You can start doing some of that legwork now. The major differences that showed up between the mail survey and the telephone survey were not across the board for all modes of fishing. It is just for the shore fishing and private boat fishing, I believe were the two

where you had two to seven times higher catch estimates based on the mail survey as opposed to the phone survey.

You could look at stocks now that get updated or assessed or benchmarked and see which of those stocks have a high component of shore-based fishery or private boat. That would give you a good guess of which stocks may shake out at the top of the list when it comes time to say, whoops, we got all new numbers here and they may be radically different.

Those species should be tackled first. Some of that work can be done now is what I'm saying and not wait until 2017, to get at least a sense of how many stocks you are dealing with and which stocks are they, especially if they are stocks like snapper or grouper of something that is a high-visibility stock.

DR. BARBIERI: Right, John, excellent point. I'm sure that staff will be working with the Science Center and the Regional Office in trying to address some of those issues as early as possible in anticipation of upcoming assessments we have down the road. Any other questions or comments regarding this issue?

Seeing none; that leads us to our next agenda item, Agenda Item Number 6. We're going to have what I believe will be a relatively extensive discussion on the geographic range of the SEDAR 32 Tilefish Assessment. I sure hope that everybody has had a chance to read through all the documentation associated with this item. It is a very complex item.

We're going to have a few presentations to give us an update on some of the data issues, overviews from the Northeast Regional Area and the Mid-Atlantic Council. Then we're going to have a presentation by Dr. Cynthia Jones of Old Dominion University, a very close friend and former mentor of mine, so it was pretty good for me to have this opportunity to interact with Cynthia once again in a professional setting.

In terms of action items for this agenda item, we expect the committee to evaluate the presentations, the information being presented, and then recommend stock geographic range represented by the SEDAR 32 assessment. Basically it is for us to have a discussion on whether our previous statements or concurrence with the range that had been applied to the assessment originally is still what we believe to be true and most representative of the dynamics of the stock.

We reviewed that assessment and we have some recommendations in our report that basically accepted those conclusions from the assessment over the entire geographic range of the stock and some new information suggests potential different interpretations of this issue. The council requested that we revisit this issues; not re-review the assessment, but basically have on the basis of new data, new information that has come to light, reevaluate whether the results and conclusions of this assessment are applicable to this entire geographic range or are more in line with the geographic area covered by our council.

MR. CARMICHAEL: We had a presentation I was expecting from the Science Center. Amy, do you know the status of that? I thought Kevin was coming and was going to give an update sort of on the data from the northeast and what was in the assessment and what had maybe happened since.

DR. SCHUELLER: He is supposed to be here.

MR. CARMICHAEL: Maybe just move into Cynthia's then?

DR. BARBIERI: Yes; that would be the best, just to move things along.

MR. CARMICHAEL: While we transition over, Mike sent a message on the thing here that he said he had an answer to the hogfish question; so if you want to take that, it would be good.

DR. BARBIERI: Yes, please, Mike, go ahead.

DR. LARKIN: (Not recorded)

DR. REICHERT: Thank you; I appreciate that clarification.

DR. CHEUVRONT: Yes, I came up to the table and I say one thing, and I didn't get it exactly right, so I need to correct what I had said earlier. Dolphin ACL; the sector allocation changed in the Generic AM Amendment, not in Dolphin Wahoo 5. The Generic AM Amendment has been submitted for approval, but it has not been approved yet.

The ACL that was in place for 2014 that Mike showed earlier as having been exceeded; it was exceeded in 2014. However, if the proposed ACL that is before the Secretary of Commerce now, assuming that gets approved, then it would not have been exceeded. If the landings remain the same this year and that is approved, then it will not have been exceeded.

DR. BARBIERI: Kevin is here; but since we have the Old Dominion University presentation queued up, we're going to go ahead and get started with that whenever John is ready.

DR. JONES: I'm Cynthia Jones of Old Dominion University. The person who is going to make this presentation to you is Mike Schmidtke. This is his PhD research, both on the biometrics he is going to present today, but also modeling that he will be doing on the species. It was part of a grant from Wallop-Breaux through the Virginia Marine Resource Commission, looking at bluelines, goldens, Warsaw, snowy groupers. Additionally, we also obtained information on barrel fish, and blackbelly rose fish in the process of this three-year collection.

With that I'm going to turn it over to Mike Schmidtke. Mike went out on the vessels for three years, and so he has not only extensive experience with looking at the biometrics of the species, but also he is able to give you a little insight into how the headboat and for-hire fisheries work in Virginia and what the behavior of anglers in the presence of VMRC personnel is.

DR. SCHMIDTKE: We're going to be running through several figures. Some of them, if you've seen any of my talks at conferences, you've probably seen them before, but we'll just highlight some of the main factors that are applicable here. Length frequency; we see some degree of bimodalism. We see some representation of sexually dimorphic growth, which has been seen elsewhere with males growing larger than females.

One thing about the bimodalism is, regrettably, we didn't document this when we were out there, but I just noticed anecdotally there were different hook sizes. Typically the headboats out there

would use a smaller – both were circle hooks, but headboats would typically use smaller circle hooks than what a private charter vessel would sometimes.

The recreational private charters; a lot of times they would be targeting for us golden tilefish, some of the larger – some wreckfish, some snowy grouper; and in going after them, they would use the larger circle hooks; and in the course of targeting some of those other species, we would also catch bluelines there, so that may lead to some of that bimodalism that we see; and a similar type of thing with the age frequency.

One thing to note with the age frequency; once you get out past about age 18, there is significantly more females in that plus class than what you see with males, so there are a lot of old females that we observed within this population. Here we can see the growth curves of blueline tilefish caught in different states.

Pretty much all of this data was used in SEDAR 32, except there was one additional year of sampling for the Virginia data, but the result is still pretty much the same. These are the data since 2000, so we've tried to capture more of that modern fishery rather than including the historical data. But there is a significant difference in both Bertalanffy and K parameters between the Virginia growth curve and those of all three of the other states that were tested.

This was regardless of T not being fixed or allowed to vary, so there is quite a bit of difference in those T knots state to state; but even when we fix them, we still observe these differences. The sex ratio within that Virginia population is slightly skewed towards males; but even though there is statistical significance, 1.28 isn't really a huge thing to worry about.

There still seems to be a good number of females and especially with that larger proportion of older females. That indicates at least at the time of our sampling a fairly healthy population. That is pretty much a reiteration of the previous age-length frequencies where we saw significant differences by age/length, and again significantly more females in that older age class.

GSI samples were fairly limited for us. We did see a peak in GSI over the span of the summer months and late fall months. This corresponds to a similar season as what is seen in a previous study of the South Atlantic. Even though September and October show the highest GSI; that may not be necessarily applicable for the population in general. That actually may be due more to the females that are spawning at that particular time; and I'll get to that a little bit more later.

We observed all of the different phases of spawning within this Virginia population. We have examples of each of those on the screen. Then when we look at it from a relative frequency perspective, we can see quite a bit of seasonality, a seasonality that corresponds to that South Atlantic spawning season where we have spawning occurring over the summer and into the fall; then regression regeneration into development, development happening in the spring.

Going back to that GSI figure, the females that are spawning later into the season are typically older, larger females. That could have contributed to that GSI peak, so to speak, that may not be fully representative of the height of spawning activity. With that, does anyone have any questions?

DR. CRAIG: I have a question about the spatial variation and growth. I'm Kevin Craig; I'm from the NMFS Beaufort Lab. I was the lead biologist on the blueline assessment a couple years ago. I had a question about how aging error, which was significant for blueline, might affect the interpretation of these spatial differences in growth and perhaps what I believe are the opportunistic nature of the sampling would affect those growth curves as well.

I guess what I'm getting at is we don't have a fishery-independent survey for blueline where we can make statistical inferences at the population level. I'm just wondering if the opportunistic nature of the sampling or perhaps an aging error could contribute in some way to those differences in growth across the region.

DR. SCHMIDTKE: Well, with the aging error, if I remember correctly, although it was significant, it was only a year of difference between labs during the assessment, which while, yes, statistical significance; we need to recognize that. But one year in perspective of a fish that lives to be 40 is not really a huge difference and would not significantly impact those curves.

I can go back to the slide, just so we can have it up for reference. Then addressing the other part of your question; the growth curve, addressing the other part of your question, I agree the opportunistic nature of the sampling would impact something along the lines of a frequency of growth; but in the terms of length at age, you wouldn't really want to have that population to be, I guess, representative from that frequency standpoint, because you need a certain number of older individuals to nail down that higher end of that curve. I think that the length at age would still be applicable even if the age and length frequencies themselves wouldn't be useful for an abundant sampling.

DR. CRAIG: All those fish in those different growth curves were aged by ODU or were some of those aged by South Carolina DNR or the NMFS Beaufort Lab?

DR. SCHMIDTKE: Those would have been – I don't believe that DNR did any aging for the samples since – (not recording) – but, yes, in that workshop there were representatives from several agencies from the South Atlantic as well as ODU. We had a couple people go down, myself and one other guy went down for that aging workshop. That was collaboratively figured out between the agencies.

DR. REICHERT: Yes, you are absolutely right; because of the other stock assessments of high-volume species, and that was the year that MARMAP faced a considerable budget cut, we were unable to update the fishery-independent data for the stock assessment; so beyond the available data, there were no fishery-independent age data, so you are correct on that.

DR. CRAIG: Just one comment, because we tried to address some of this in the assessment; and we had to come up with a population growth curve to drive the dynamics in the assessment model. I remember we fit the growth model with and without the Virginia samples, and it didn't have a big effect.

Although it looks striking here, it didn't have a big effect on the population growth model when those Virginia samples were integrated with the other commercial, recreational and fishery-independent samples that were collected. If I recall right, I think that is because at those older ages the sample sizes were maybe a little bit smaller and so that higher asymptote that appears

there kind of got swamped when those samples were combined with those from the other areas of the range.

DR. SCHMIDTKE: Yes, I think there was part of that. I mean they are going to be smaller in general just because of the rarer nature of those size classes and consequently age classes. I think also there was a lot more South Atlantic data than there was Virginia data at that time. There was at least twice if not three times more South Atlantic data; so if you would have just combined them altogether, then any differences that could have been there would have been swamped out by that.

DR. SCHUELLER: You said something at the beginning of the presentation about hook sizes. Can you speak to the impact that selectivity likely has on these growth estimates for each of the different states given the sampling gear. Then also there is a potential, depending on that selectivity, that a bias correction might need to be done on either that lower end of the curve or the upper end of the curve. Was a bias correction done; and if so, what was the impact of that?

DR. SCHMIDTKE: There was not a bias correction done for this case; because when we tried to relate it to the other states, we didn't have the same information available to correct for any bias that would have been in those other states as well.

DR. SCHUELLER: What I mean by a bias correction is you can do it internally to the dataset that you have. There is a paper out there, a couple, where you look at the distribution of lengths at a given age and you assume that that is, say, age, I don't know in here, 10 is fully selected and that gives you a distribution of what length should look like at age. Then you are bias correcting those either smaller, younger/older, larger distributions based on what that distribution looks like. It is an internal thing; it is not across.

DR. SCHMIDTKE: I can look into that more. That was not done for these, but I can look into that more and see if that has any impact on it. What was the other part of your question? I forgot it.

DR. SCHUELLER: I wanted you to speak to the selectivity of the gears used to collect the samples and how that might impact the growth curve analyses.

DR. SCHMIDTKE: I would say it would impact it from the standpoint that you would not have selectivity for the smaller fish, obviously. But because a good chunk of our samples were from that headboat, and going back to the length frequency; that even though it is bimodal, the higher mode is on the smaller end of the spectrum; I think that we are fairly accurately capturing those earlier ages that would be available to the gear. In general, the larger sizes are going to be rarer. It helps to nail down the higher end of the growth curve to have more of those larger sizes.

DR. SCHUELLER: Yes; is that true for every dataset here? I'm talking about this individually. How is the selectivity for the gear used to sample the Virginia samples different from the gear used to harvest or sample the North Carolina samples? I guess I'm comparing between the space; so there is four growth curves up here.

DR. SCHMIDTKE: I understand the question. I don't know; I would need somebody that is more familiar with the NMFS – some of this was fishery-independent sampling; some of this

was fishery-dependent sampling. There was a mixture of these different methods that were used in contributing to this dataset.

Ours was fishery dependent and quasi-fishery independent. It was fishery independent from the standpoint that we had some influence on where the boat went, but we did not do a stratified random sample of the area from that standpoint. We could talk about the mixture of the two techniques and it could have had an impact; but at the same time both of them are using fairly mixed techniques, so it is hard to parse that out.

DR. CRAIG: I think I might be able to help there. My understanding the ODU fish mostly came from the recreational sector and mostly from charterboats. The rest of the samples in the South Atlantic, as Mike was saying, came from a lot of different sources. It was primarily commercial, handline, and longline samples, some recreational samples and then some of the MARMAP fishery-independent trap samples.

I guess that was what I was getting at earlier. The spatial variation and growth could be one explanation for these differences in growth curves; but if there is differences in selectivity of the gear in the different regions, then that could be another explanation as well.

DR. SCHMIDTKE: I guess would that alter the size at age? It would alter the size, but would it alter size at age?

DR. SCHUELLER: It could alter the mean size at age, which is what these growth curves are ultimately based upon; because if you are not collecting an adequate sample at any given age, it is going to be biased somehow. That is why I brought up this bias correction, because I think ultimately if you did that bias correction – I don't know.

I don't know what your raw data looked like, because there are just curves up here; but there is the potential for at least the lower ends of those curves to come together and then maybe those upper ends are still further apart. But then the question really becomes is this more of a spatial issue with some sort of growth overfishing occurring in the southern region but not in the northern parts of the range?

DR. SCHMIDTKE: I think there was actually a graph. I think there was a figure within the SEDAR report that showed that difference. It had data points; it had raw data points. It still seemed very obvious from that one. But if there is that bias in selection, then that is something to be considered and look into corrections for it.

DR. SCHUELLER: I'll say this all under the premise that having worked on menhaden and the assumption was that we really knew what the growth curve looked like for a long time, and then suddenly new data appeared of bigger, larger fish than what had been sampled in the fishery-dependent samples. Now we have a very different view of our growth curve, and we did do the bias correction and it has an impact. Just keep that in mind.

DR. BARBIERI: Mike Errigo, you had a question or comment?

DR. ERRIGO: I was going to just show one of the documents in the blueline tilefish folder has all the samples that were used for the growth curves by gear type and area and gear. There were

commercial handline samples, commercial longline samples. Commercial handline samples, there were some from Virginia; most of them were from the South Atlantic. Commercial longline samples were only from the South Atlantic.

Recreational samples were charterboat and headboat samples mostly from North Carolina, Florida, and Virginia. Then there were the independent samples. The MARMAP samples mostly occurred in the early part of the time series or only occurred in the proper time series and then stopped. Then after that, there were some from North Carolina and Virginia. There was a mix. This breaks out when and where they all came from. I was just going to point that out.

DR. GRIMES: My question is about reproductive biology. It is personal curiosity, I guess. I'm not sure it has a whole lot of bearing on the question at hand. Historically an old study reported some evidence of sex reversal in the caulolatilus microps and some kind of – it was histological evidence. It was a recent Lopholatilus study that now claims that they reverse sex. I was just curious if in your histological material you looked at, perhaps did you see any kind of evidence of sex reversal?

DR. SCHMIDTKE: I didn't see any. They were pretty clear-cut male/female, not really much indication of a mixture in any of our samples.

DR. REICHERT: I don't believe in our lab we've ever found that in our reproductive studies on blueline.

DR. BARBIERI: Any other questions or comments for Mike?

DR. ERRIGO: In the SEDAR 32 documentation during the data workshop and also from the preliminary paper that was included from you guys; there was a comparison with an old – it was one of the Harris studies. It was an old growth curve of blueline tilefish from the South Atlantic. I think from the early eighties I think was how far back it went.

It showed growth very different from the current growth curve of the South Atlantic but more similar to the Virginia growth curve. I think you guys did a statistical comparison with that one. Might that suggest that the differences in growth here are due to heavy overexploitation rather than genetic gene flow differences, differential evolutionary processes?

DR. SCHMIDTKE: The paper you are referring to is the Ross paper. That dataset was taken from the late 1970s, and, yes, these differences could be due to differences simply within the fishery and the fact that the Mid-Atlantic fishery is newly developing whereas the South Atlantic one has been relatively long exploited. But I guess the only way to really parse that out is to do more investigation from either a genetic or some other standpoint to see what is that difference to?

It could very well be for something else; but either way, I guess one other thing to throw in there is when you are talking about an age-structured type model and we're using things like length at age; if there were going to be differences within the growth, then that could result in differences within the results of the model.

DR. BOREMAN: I went back and looked at – you know, the question at hand is again does the assessment that was done in 2012 that we looked at – we didn't, because I wasn't at that meeting – did the assessment that was done in 2012, based on the information we had before today, does that assessment apply to the stock throughout its range of the whole Atlantic coast or is it limited to the areas where the sampling was done, basically?

I'm reading form the Data Workshop Report. I came across one quote, it said; "Because of the perceived difference in size at age of the Virginia fish compared to the fish from North Carolina to Florida, population growth was modeled on age samples from North Carolina to Florida only." The Virginia fish were not even used in the population modeling at all then; because again according to the workshop report, because of the perceived difference in size at age. The cause of that could be a number of factors, but just putting that on the record.

DR. BARBIERI: That is an excellent point, John, to bring up. Oftentimes we have decisions that are made at the data workshop stage that cannot be sustained going forward and the assessment panel or the review panel suggests revisions in terms of how the data is going to be aggregated or broken apart. Looking at the assessment, the growth curve that was used in the assessment; was the Virginia data then later incorporated or that was never included?

DR. SCHMIDTKE: I don't remember that specifically. I remember we looked at the growth curve with and without the Virginia data; and I can show you a graph of that if you want so you can see the differences. But the differences were imperceptible; you really couldn't tell a difference. That was mostly because when we do the growth curves, we tend to weight it by the sample sizes; and the sample sizes for the Virginia fish, particularly at those older ages, were fairly small.

Which one exactly was used; I'm assuming that if it says in the data workshop report that the South Atlantic fish were used, then that is probably what was used. I don't remember anything that overturned that as part of the assessment workshop. But I do remember comparing, and I can show you this if you want, the growth curves with and without this fish to see what the differences were.

DR. ERRIGO: I've extensively been back over the report to try to fill out this Excel worksheet. The Virginia fish were used after doing that sensitivity analysis and showing that there wasn't a big difference. They decided to include them in the growth curve. The Virginia fish were not used in any of the length or age comps.

From the data workshop, they were decided not to be used. From the assessment workshop, they used the Virginia fish in the recreational length comps in the general recreational; so like the MRIP recreational landings, only in the length comps. They were excluded from all the other age and length comps. They used a very interesting method of including them. There is a working paper for SEDAR 32, which explained how they incorporated them.

DR. SCHMIDTKE: Ultimately the length comps didn't remain in the assessment, so we had conflicts between the length comps and other data sources, and the decision was made not to actually fit to the length comps. They weren't used in the assessment model for other reasons. We did have a combined recreational age composition that was from a relatively small sample size; I think around 100 fish.

That included fish off Virginia that we were using to inform selectivity for the recreational fishery. I am pretty sure; I believe that those fish did include the Virginia fish. I might have to check that; but I don't know what the other source of the recreational age samples would have been, because there is no aging for MRIP.

DR. ERRIGO: I could not find that the ODU samples were used for age comps. Recreational age samples; there were some from North Carolina and some from Florida, very little, though, like very little. A total of 96 fish were used in the age comps and they did not include the Virginia fish. If the length comps were not used; that means the only place the Virginia fish were used were in the growth curve.

DR. BARBIERI: Okay, Mike and Mike, a great presentation and discussion. Do you have something that you would like to present, Kevin?

DR. CRAIG: I have a short presentation; it is about 20 slides.

DR. BARBIERI: Now we are an hour and a half into the meeting, so at your pleasure we could have a ten-minute break and then we return for Kevin's presentation then.

MR. CARMICHAEL: I think that's good, because we're having webinar audio difficulties, so I think our last resort here is to try and turn off the webinar and restart it and maybe its audio connection will be improved.

DR. BARBIERI: We are going to continue our discussion of blueline tilefish. Kevin is going to give a short presentation, a summary of some of the data information that was used in the assessment and some of the comments about the analysis that might help us learn a little more about the situation.

Then talking to Steve Cadrin, he tells me that he and Churchill Grimes also had a little discussion. You may remember that both Church and Steve served as SSC representatives at the review workshop. I think Steve was actually the Chair of that review workshop. They also have some perspective to add to this discussion after we hear from Craig.

DR. CRAIG: Okay my name is Kevin Craig. I was the lead biologist on the SEDAR 32 assessment for blueline, which seems like we did ages ago. What I want to do is just provide a really brief overview of the history of the assessment. You have the assessment itself in your documentation. Then I wanted to get at this issue that was a question that was raised earlier; what is the geographic range of the assessment, and then say a little bit about some recent trends in the landings that have motivated a reassessment of this issue of geographic range. The assessment was conducted through the SEDAR process; it occurred most of 2013.

The terminal year of data that was used in the assessment was 2011. There was a review workshop conducted in August. The assessment was reviewed. As Luiz mentioned, Steve was the head of that review panel. We had six external reviewers; I believe it is three CIE reviewers. One of the things that were noted by the review panel at the workshop was the consistency in the three assessment models that were produced.

We had a catch-at-age model, which is a fully age-structured model. It was the Beaufort Assessment Model that was implemented in ADMB. We had an age-structured production model, which is basically a condensed version of the catch/age model where we're not estimating annual recruitment deviations, but are including a lot of the other age-based processes like selectivity and natural mortality and so forth.

Then we also had an age-aggregated-production model that subsumed growth recruitment and natural mortality into annual changes in biomass; so there is no explicit age structure in that model. All three of those models agreed in terms of the exploitation and the biomass status, so the status was determined to be overfished with overfishing occurring.

I will note the overfishing status was highly robust to uncertainty, so we did a number of sensitivity analyses. We also did a Monte Carlos Bootstrap where we resampled all of the data sources that went into the assessment, as well as several of the key parameters, steepness and natural mortality. We sampled those over a very broad range of potential parameter values.

It was very difficult to get a situation where overfishing was not occurring, so it was fairly robust to that, I think. In the Monte Carlos Bootstrap about 95 percent of the runs, 94, 95 percent indicated overfishing. The review panel recommended using the BAM catch-at-age model and its base configuration to determine the status and for the projections.

That was then presented to the SSC in October of 2013. I wasn't at that meeting; I think Steve actually did that presentation. A few questions arose after that about the possibility of a recent strong year class of blueline that might be in part supporting some of the recent high landings. We took a second look at the age compositions that were used in the assessment, as well as the 2012 an 2013 age comps.

The end result of that is we really didn't see a lot of evidence for a recent strong year class, although out power to detect that is pretty weak for the types of data that we had. There were also some questions about the projection methodology and some requests to include the actual landings or the proposed landings under the pending regulations in the projections, which we did.

The projection methodology is pretty standard. It is consistent with what's been done in prior SEDAR assessments as well as in other regions. It was also reviewed by the review panel. Then about that same time, June 2014, the South Atlantic Fishery Management Council modified the overfished definition for several deep-water species, including blueline, and that changed the biomass status; so blueline was no longer considered overfished although the overfishing status still remains. Then I kind of forgot about blueline until the last couple of weeks.

I got this question, which I guess was put to the SSC by the council, is what geographic range does the assessment extend over; and I asked John what would be most helpful. He mentioned looking at some of the recent landings, including some of the vessel trip reports from the northeast.

I've been working a little bit remotely with Jason Didden, who is here in the room, on some preliminary analyses of these data. I think Mike here has also been looking into that as well, so hopefully he'll be able to comment on some of this. At the time of the SEDAR 32 assessment,

the life history group recommended that the South Atlantic stock include the Florida Keys northward, as far north as landings were recorded in U.S. waters.

That was based on basically a literature review and associated discussions within the workgroup. There are not any genetic studies, although there are a couple of studies pending to evaluate stock structure. We didn't have any other indicators to evaluate that. That was the decision that was made and was approved at the data workshop, and that sort of was the basis for or what subsequent decisions were predicated on.

In terms of the landings, the landings are coastwide, so those extend from Florida to Maine. Commercial landings were queried from ACCSP. Recreational landings consisted of landings from MRIP from North Carolina to Maine, as well as the Southeast Regional Headboat Survey. In the South Atlantic proper, which is North Carolina/Florida, we exclude the charterboat landings from MRIP but include the private shore-based modes – wait, exclude the headboats, I'm sorry – include the charterboat, private and shore modes and then the headboat survey, which extends from North Carolina south is used for the headboat landings.

For Virginia north, we include all the modes from MRIP. That covers private charterboat, headboat, and there are no shore landings above blueline; but those are there as well. This was in terms of the landings was considered a coast-wide assessment. The question of geographic extent seems to have been motivated by recent landings trends in the fishery, so I wanted to look at some of the recent patterns in the landings and try to put it in the context of the assessment that was done under SEDAR 32.

This is the landings' history for blueline tilefish. The terminal years specified there with an arrow is 2011. The commercial landings, which are mostly handline and longline, are shown in blue and then the total recreational landings are shown in red. You see this is predominantly a commercial fishery for much of the history of the fishery.

There was a peak in the early to mid-1980s where landings were upwards of a million pounds. A lot of that may have been associated with the snowy grouper fishery at the time. I also understand that at the time the fishery was centered mostly off of southern North Carolina and South Carolina. That lasted for about four or five years in the early to mid-1980s.

Then there was a 20-year period where landings varied from roughly 200 to 300,000 pounds. In the beginning, in the mid-2000's there is an increase in both commercial landings and the recreational landings. The recreational landings' increase actually preceded those in the commercial fishery by a couple years. In 2011, which was a terminal year of the assessment, there was also a deepwater closure; and so both recreational and commercial landings dropped in 2011. Then the new landings are shown in those last three years, 2012, 2013, and 2014.

When I query these, I should say most everybody told me to consider the 2014 landings preliminary, but I think 2012 and 2013 are pretty good. You see the commercial landings come back up in 2012; they stay about the same until 2013. 2014 was the year the regulations were put in. I believe those were the landings that were associated with 75 percent Fmsy. I think it was 224,000 pounds. But even so, the commercial landings stayed high in 2014.

Recreational landings went up in 2012, continued to go up in 2013, and then they declined in 2014. There has been this return of the landings to levels that occurred prior to the closure and also in the year that the regulations were implemented. We looked at the last three years, which weren't included in the assessment, and the bars here show the total landings about 300 to 350,000 pounds in each year.

South Atlantic landings, which are North Carolina to Florida, dropped over that time period down to around 150,000 pounds; and then we see this increase in landings in the Mid-Atlantic in 2014 to around 220,000 pounds or so. We looked at those landings spatially, both over the last 10 years of the assessment and in these three post-assessment years.

Over the last ten years of the assessment, about 80, 85 percent of the landings were coming from North Carolina, with some from South Carolina and Florida/ Georgia – these are the commercial landings – very few from Virginia north; that is less than one-tenth of one percent. That same pattern held in 2012, that top panel on the right, 2013 as well.

Then in 2014 there is a shift where the North Carolina landings declined to about 20 percent of the total and then New Jersey landings increased to about 50 or 60 percent of the total. Jason Didden, I was in contact with him and he alerted me to these vessel trip reports, which are conducted across this area in the northeast and Mid-Atlantic.

I don't know the details of the sampling program. My understanding is it is required for all commercial vessels with a northeast federal permit. It is also required for for-hire charterboats, so you can think of the recreational component as a subset of the recreational fishery in the Mid-Atlantic and the northeast.

We looked at these over a similar time period and you see a very similar pattern. North Carolina accounts for most of the landings. You see that drop from 2012 to 2014. Then Massachusetts to Virginia, which historically had not landed any blueline tilefish, landed about 220,000 pounds in 2014.

We dug a little bit deeper into these VTR data to see exactly where they were coming from. I believe these are self-reported statistical areas of where the fish were actually caught. Over this period, since 2001 about 85 percent of the blueline landings – this isn't in the whole fishery, but just in the northeast VTR data – are coming from three statistical zones, 626, 632, 636, shown on the map to the left. We looked at how landings have varied in these three statistical areas.

I group these as North Carolina and Virginia, which are 632 and 636. The statistical areas don't necessarily correspond to state boundaries. North Carolina and Southern Virginia are those two lower statistical areas in gray. Central Virginia is 626; and then everything else north of there is the green line in the graph. That North Carolina/Southern Virginia area historically accounted for relatively high percentage; and it varied quite a bit annually, but anywhere from 40 to 90 percent of the landings from the VTR data. It dropped to its lowest level in 2014, coincident with this increase in central Virginia, 626.

There are really no other obvious changes in the other regions. One inference you can draw from this is these high 2014 commercial landings in New Jersey seem to correspond with the decrease

in landings reported for North Carolina and Southern Virginia waters and an increase in landings reported from Central Virginia waters.

To me, this seems like it is a fairly localized phenomena. This isn't indicative of a lot of landings that seem to be occurring in the northern regions off New Jersey or Massachusetts or areas like that. It is a shift that appears to be on the order of 50 to 100 miles or maybe it could also be an expansion of about 50 to 100 miles from sort of North Carolina and Southern Virginia to Central Virginia waters.

We also looked at some of the for-hire recreational landings for this same dataset. These have been fairly small up until recently. We're looking at 10,000 to 20,000 pounds during a period of assessment that is out of a fishery that is somewhere around half a million pounds; but you do see this increase that occurs in 2012, 2013, and 2014 up to about 70 or 80,000 pounds.

That seems to be driven by landings that were taken off of Virginia and Maryland, the 626 and 622, the shaded statistical areas in the map at the upper left. It overlaps with where the commercial landings seem to be coming from and maybe extends a little bit slightly to the north. I tried to put this in context of the total recreational landings.

What you're looking at here is the recreational landings coastwide from MRIP and the headboat survey that were used in the assessment; that is the blue line. The green line is the MRIP charterboat mode coastwide. I don't have that for the most recent years, but you can see the total recreational landings that were used in the assessment are driven mostly by the MRIP charterboat mode. Then you can see the VTR for-hire landings in the northeast with the red line.

Over the course of the assessment, those VTR landings were pretty small compared to the total recreational landings, although there is some question of whether that is true for the most recent years. We also tried to pull some other sources of information that we might shed some light on how far north these fish are actually distributed.

If you look at the VTR data in terms of presence/absence, I showed earlier the upwards of 85 percent of the landings are occurring in those statistical areas to the north, 626, 632, 636; but there are records of landings or reports of landings along that bathymetric contour. I'm not sure what depth that is but you do see it going up to the northeast.

Again, the suggestion here is that there are – again, his is self-reported at a pretty coarse scale, but it does suggest there are at least fish in these regions. It is an open question as to what the abundance is up there. We also contacted some folks at the Northeast Fisheries Science Center and looked at their bottom trawl data.

That is a survey that has been ongoing for almost 50 years, and obviously this isn't a good year for blueline. There were 22 blueline tilefish caught over that 50-year period. Each one of those circles is a single station with a single blueline, except I think you can see right around North Carolina there is one bigger circle where they caught 6 blueline in a tow. I am not sure how much to make of this.

It is kind of consistent with where the commercial and recreational landings seem to be coming from off the northern North Carolina/Virginia area. There seemed to be sporadic records to the

north, but nothing that would indicate some consisting areas of high abundance in those northern regions.

Just by way of summary, and hopefully it generates some discussion, this is put together over the last two or three weeks. Some of the things I think we could say are the high 2014 landings in New Jersey seem to be fish that were caught off of Virginia, the same areas where increases in landings were occurring towards the tail end of the SEDAR 32 assessment.

There are not a lot of indications that there is a large northern stock; and I've got large stock in quotations, because we really don't know what the abundance is in the north and we don't have information to really get at stock structure. The increase in the landings in the northern region, mostly Virginia, is not a post-assessment phenomenon that has been occurring since the mid-2000s, and it was captured by the assessment up until the terminal year 2011.

This increase in my mind at least in the north is a fairly localized phenomenon. It is a shift or perhaps an expansion from Northern North Carolina, Southern Virginia to Central Virginia. We're talking about a linear distance of about 50 to 100 miles for a stock that extends potentially over 2,500 mile stretch of the coastline.

I should also inject a caveat here that it seems like the longline fishery is fairly nomadic in nature. It is not localized; so you are traveling an extra 1,500 miles. From the people that I've talked to, it doesn't seem like it is an insurmountable distance for longliners. I wanted to make a couple of comments about this VTR data, because I talked to some of the folks at ACCSP to see if this is really an independent dataset that wasn't considered in SEDAR 32 or if there was some overlap with some of the other data sources.

From my understanding for the commercial landings captured by the VTRs, those are reported to ACCSP. When we do those queries, those are included in the commercial landings. This northeast VTR data was incorporated in the assessment. It is not a source of landings that was ignored.

The recreational for-hire sector, the charterboats in the VTR data; that sector was included in the assessment as a sample mode in MRIP for those northern regions. We didn't explicitly include VTR charterboat data; but in some ways this is two different sampling programs that are covering the same sector of the fishery. It is covered by both MRIP and the VTR.

It is not a case of recreational charterboats not being covered; they just happened to be covered by two different surveys. In the assessment we used the MRIP data. There is a legitimate question as to whether those northeast vessel trip reports might better capture the charterboat mode of the recreational fishery in the north than does MRIP.

That is a legitimate question, but they were covered to the extent that MRIP captures that. Then from the limited amount we could glean from the trawl survey and the presence/absence; the blueline do seem to be present as far north as Massachusetts; but as I said earlier, the abundance in those regions is basically an unknown. I think that is all I had.

DR. BARBIERI: I think that this was very, very informative. We appreciate you putting all of this together and contacting all the different sources and pulling all this together for us. We're going to start questions and comments from the committee.

DR. BOREMAN: Just a couple of questions. First of all, the MRIP information, obviously MRIP isn't designed to really cover a fishery like blueline. I would think that the numbers there are really uncertain, to say the least. Second, Virginia and Maryland instituted regulations for blueline catch; and when did that happen?

That was early 2000s or when, because that might also influence this apparent shift in landings here to New Jersey. Well, New Jersey has no regulations on blueline landings, so there might be an incentive clause there, because Maryland and Virginia do have regulations now in place for blueline.

DR. CRAIG: I can't really speak to the second question. I don't know when the regulations were implemented in Maryland and Virginia. With regard to your first question, I think you're right. I guess what I would say is we shouldn't compare MRIP and the VTR charterboat modes based on single years or things like that.

I think there needs to be a more systematic comparison. My suspicion is probably the same as yours that MRIP; because of the nature of that survey, there is probably high uncertainty in those landings. I am assuming somebody in the northeast or the Mid-Atlantic has dealt with this before since there is both the MRIP data and the VTR data.

I'm not aware of any formal comparisons between those two that have been done. Some of the things I think you might run into is if we're underestimating charterboat landings by MRIP In the northeast, then we're also doing so in the southeast, and we don't have a comparable charterboat survey.

Another one of the issues would be how to hindcast those landings. I believe the VTR sampling began in 2001. We would either have to make some assumptions that there were no landings prior to 2001 or come up with some sort of hind-casting method like we've had to do with the headboat survey in the South Atlantic.

DR. BARBIERI: Michelle actually checked into those regulations; and it was 2007 she found was the year that those regulations were implemented.

DR. BOREMAN: You're talking about the regulations for Virginia and Maryland, 2007.

DR. SCHUELLER: I guess trailing on that; some of the figures that you showed, 2007 was the year those regulations were implemented, 2007 also looks like 2014 on a lot of those figures, if you really look at them. They have similar landings and similar locations; something to think about.

DR. BARBIERI: Any other questions or comments?

DR. SMITH: Kevin, can you remind me what the northern extent of the information you had to construct indices was.

DR. CRAIG: We had three indices. One was the headboat survey, which extends from North Carolina to Florida. We had a commercial longline index and a commercial handline index. Both of those extended from Cape Hatteras to Cape Canaveral. This was something that was discussed at length, and there is a variety of the socio-analyses that were done as part of the index working group.

But basically the conclusion was there had been significant changes in targeting of blueline in the northern regions and also in the southern regions; and so the index was truncated to that central area between Hatteras and Cape Canaveral.

The idea with the index is you want the annual patterns to reflect annual pattern changes in population abundance. When you have a region where there are changes in effort or potentially changes in catchability, then that can obfuscate the utility of that index for indexing annual changes in abundance. That is why it was truncated.

DR. SMITH: There is definitely a mismatch between the index and the catch. I wonder if you could comment on what potential biases there could be with that.

DR. CRAIG: I don't think there is any requirement that an index be in an area where the landings are concentrated. There is actually – as I was talking about, there are reasons you wouldn't necessarily want that.

The only requirement is that you want it to be in a region where those annual patterns reflect actual annual changes in abundance, which in absence of a fishery- independent survey or anything of that nature would be in an area where there aren't obvious changes in the dynamics of the fishery that would lead to some of these changes in effort or changes in catchability.

DR. BUCKEL: With 22 fish it is hard to do much; but I was just curious in the trawl survey if you looked at the decadal pattern, like if there was maybe very few fish in the sixties, seventies, and then you started seeing them show up in the more recent decades; just trying to tease apart this shift in effort versus maybe a shift in the population.

Many species on the shelf have shown this northern shift for various reasons, or southern shifts. My guess is for blueline out there maybe where temperatures are more constant, that is not an issue, but I am just curious if there is any evidence from the trawl survey.

DR. CRAIG: You're right; it is hard to do much with 22 fish over 50 years. I didn't look at that. This was something that was kind of done the last minute where we requested just some plots of where they're being caught from the survey folks at the Northeast Center. I could request that and see. I don't know if you have any insights on that, Steve.

DR. CADRIN: It is actually in our BLT folder. Mike has a page in there, any trawl survey, and he found 40 fish. But to answer Jeff's question; the peaks were in the early 2000s. They caught them back until 1982; am I reading that right?

DR. ERRIGO: Yes; and I'm not sure what years or whatever you got the data from. I wrote to someone at the Center and he said he would send me a spreadsheet, and that is what was on there. There may just be a difference in the dataset.

DR. CRAIG: I could have that wrong about the 22 fish, because I was sent just the JPEGs of the maps. I didn't actually have the raw data that I plotted. They created those maps and sent them. There could be discrepancy in the actual sample size; but I don't know that 22 fish versus 40 fish makes that much difference.

DR. ERRIGO: There are several years where instead of one fish, there are two or three and four, but it is not a lot. I don't know that you would be able to make a trend out of it.

DR. REICHERT: Quickly looking at that; most of those relatively high catches are all North Carolina ones, also.

DR. BARBIERI: Yes, good point. Before we open up for the broader committee discussion here, I would like to hear some from Steve Cadrin and Churchill Grimes regarding their perspective on this, having been members of the review panel for SEDAR 32.

DR. CADRIN: Thanks, Luiz, and thanks also for giving us a heads-up a month or so ago when this issue was raised. It gave us time to go back through our notes in the report. In fact I think we should be careful the next time we agree to be a SEDAR Review Group Chair; that if you agree to do that just before a federal furlough, you will be pressed to present that to the SSC; and two and a half years later you'll have to go back and present it again; so that is just something to keep in mind.

I really think Kevin captured it, is that the SEDAR 32 assessment had 2011 as the last year of data, so it didn't have these 2012 or 2014 data that I think are very interesting; but this is not a new phenomenon. It really started about 2008 is when this deep-drop fishery and the northern North Carolina fishery had started.

We had that recent period of data in the review, and we spent a considerable amount of time on it. When I went back to our notes of what we asked Kevin to do, it was really going back and looking at the spatial aspects of the catch and the CPUE data. In a sense, I think we really drilled down into this quite a bit.

In general, I think we expected, especially having Churchill on the review panel, who is a tilefish expert; we expect that there is complex spatial structure, a fine-scale spatial structure with the potential for local depletion; but we also recognized the data limitations. Applying BAM may be pushing the information content of the data; and going to a fully structured Stock Synthesis 3 might be going too far with the data we have.

We agreed that the approach of including the coast-wide catch – and my notes are Rhode Island to Florida – but a restricted geographic range for the standardized CPUE, as Will had asked, was the best use of the data, because that restricted range was fished relatively consistently since the seventies. As Kevin said, there were some targeting changes to the south and to the north. Having your total removals come from the full coast-wide range and your CPUE from the central part of the range is not in itself wrong.

In fact, I think the more important decision is your constant catchability assumption. We have no fishery-independent surveys here. I think that was the bigger concern of the review panel. Coming up with the standardized index, the spatial trimming was part of the standardization.

Then we looked at the data as well. What if we were to broaden this to match the removals, the spatial extent of the removals to the spatial extent of the CPUE, and you run into trouble?

The 2011 Deepwater Closure had a big impact on the CPUE north. The CPUE had been climbing since 2008; but then it sharply dropped in 2011, but probably not a reflection of abundance probably because of the Deepwater Closure. That really steered us away from and kind of reassured us that using the central range is what we should do.

Then if you looked to the south, the CPUE tanks; so if we were to go coastal, they would just balance each other. I don't think we're going so wrong with this. It is not a perfect assessment. We're using a very simple spatial assumption for a species that is spatially complex. But having gone over it, I still think that this was – for the remit of SEDAR 32, it was the best science available.

I noticed that the spreadsheet that Mike just had up has some catch rates that are in catch per trip, which are very different than the standardized pound-per-hook hour. I think we've got to be careful about using the catch per trip there. There was a great deal of effort putting into the standardizations for these and again the spatial trimming, but also there were GLMs done to standardized it. I think we've got to be careful about that.

If the management unit is coastwide, then we think that using coast-wide catch and a spatially trimmed CPUE was the best approach to do, still best science available; you consider this large increase in recent catch, an update may be needed. I suspect that may affect the scaling, but I don't know that a full benchmark is needed.

At best, we may need to just update this to see how these new landings are affecting it. I don't see a better standardized CPUE index available that would meet the constant Q assumption. Again, not a perfect assessment, but I'm not sure I see a better approach to it. I would be interested to hear Churchill's view on that.

Stepping beyond SEDAR 32 and really more my own personal view of this, having the last month or so to think about it, it really depends on the management unit. For the current management unit, I think SEDAR 32 serves our needs. If there is going to be some type of an allocation, if the Mid-Atlantic Council and South Atlantic Council decide to split the management unit; then, of course, you would remove the catches north of Hatteras.

But until that is done, I really think they really should be in there. The last point is we may need to be careful. This may be the first of many species where range expansion is considered. I hate to put more wait on this than it deserves, but this may be reoccurring. Thank you, Mr. Chair.

DR. BARBIERI: Thank you so much, Steve. I think that this was very thorough and really helped us refresh our memories on those discussions and to your presentation a couple years ago. Church, do you have anything to add to this or some additional input?

DR. GRIMES: No, not really. We talked about that this morning and we were in agreement. I would strongly support the idea that this is range expansion. Ken Able and I made over a hundred submersible dives in the Southern New England/Mid-Atlantic area in the 1970s and 1980s, and we never saw a blueline tilefish.

I recently talked to Jeff Ross, whose name came up, and Jeff was actually in Beaufort during the days when I was there as a student about a hundred years ago, and working on this complex of fishing, and so he knows quite a bit about blueline tilefish and since that time has run a headboat in and out of Oregon Inlet.

His is the same sort of thing. He said he had been there since the early to mid-1980s and that their harvesting blueline tilefish up there occurred after that time. I recently reviewed, and I was talking with somebody else about this over here, who will remain an anonymous reviewer, but we reviewed a paper for Fishery Bulletin talking about Norfolk Canyon.

It is a faunal description, and they go back and review sort of faunal survey information from the Mid-Atlantic Bight. The very obvious thing there is reporting these species like blueline tilefish and snowy grouper that historically have not been reported from that region if you really go back. That is my two cents worth.

DR. BOREMAN: Thanks, it was enlightening to hear Steve and Church talk about the 2012 assessment. If I was at the 2013 SSC meeting, I probably would have agreed that at the time it was the best science information available because we didn't have any other information in front of us.

I guess the question that I'm still asking, and I think Steve kind of answered this, but should blueline tilefish today be managed – the portion of the stock that is north of North Carolina, should it be managed in terms of its catch and other regulations based on the 2012 assessment? I think that is the key question we are here to answer; is the 2012 assessment still relevant to management of blueline tilefish north of North Carolina? I think what Steve has said is, yes, it is. But I don't want to put words in his mouth; I just want to get a clear answer to that.

DR. CADRIN: The cowardly answer would be that there is nothing else available, so, yes, it is. But I think more than that; I think we need to decide on the unit stock assumption. If the management unit is coastwide, then I still think the SEDAR 32 is the best method. I think with the recent catches, it probably should be updated.

But if you make that unit stock assumption and you're indexing it with an index from the core of the range; there should be nothing wrong with it. You may be missing some spatial patterns, and we may be; but until we develop a better assessment – and that is where I don't think we need to manage – I think we do need to manage our expectations. Could the data support a more spatially explicit stock assessment? I'm not sure, and so I don't think we should expect that it will.

DR. BOREMAN: I just want to mention that at the last Mid-Atlantic Council meeting, the council voted to go rogue with the blueline tilefish. They are going to develop a management plan of bluelines, either include it with the golden tilefish management plan, add it as another species to that; come up with a whole new deep-water complex, which is really scary in terms of how much work is going to be needed to do something like that; or come up with a separate fishery management plan just for blueline tilefish; but they did agree that they wanted to strike out on their own and manage it.

What I am worried about is, well, if you're saying if we make the assumption that the management unit is going to be the entire coast, then we'll do it. Well, that is like teleological thinking there, because saying, well, assuming that we are going to manage it coastwide, then the assessment should apply coastwide. I agree there is very little information; and unfortunately the Mid-Atlantic Council is looking to its SSC to help on this.

Doug Vaughan is chairing a working group now in the Mid-Atlantic SSC to come up with what types of research or monitoring do we need to do to even get off the ground and get something started there in terms of providing management advice and developing ABCs? We're between the rock and the hard place now I guess in terms of blueline tilefish.

DR. GRIMES: I just wanted to ask John; does the Mid-Atlantic Council have – what is the basis of thinking that this is a separate stock that has dynamics separate from the coast-wide dynamics that we used in the assessment and was reviewed before?

DR. BOREMAN: I don't think it is much of the issue of whether or not it is a separate stock. They are just saying it should be managed separately based on management regulations developed specifically for the portion of the stock; or if it is a separate stock, for those fish that are in the fishery north of North Carolina or north of Cape Hatteras.

We are seeing two states; and based on the discussions from the other states from Delaware and New Jersey and New York, it looks like they are going to follow suite with Maryland and Virginia sometime in the near future and impose more regulations as Virginia and Maryland did, putting catch limits on blueline tilefish. The character of the fishery management up there is changing as we speak. Stock; it may or may not be an issue, but I think it is more of a management unit issue than a stock issue at this time.

DR. CADRIN: Yes; I think that the scientific response is conditional on the management strategy. If the management unit continues to be coastwide, then I would submit that SEDAR 32 is the best science available; an update would be even better if it were available. If the Mid-Atlantic decides to split the management unit, then catches from the northern unit should probably be removed from the SEDAR 32 assessment, so you would then need to have – you are redefining your terms of reference and your remit.

There needs to be a policy decision made; and then we can determine the best science available. Right now the management unit is what it is. Maybe that is how we should respond is that there needs to be – and there are, of course, access issues, there is allocation issues that have nothing to do with the assessment.

DR. SEDBERRY: I was just going to add some comments to what Churchill said a few minutes ago about the changing distribution of a lot of these species. I did a lot of work with Jack Musick back in the early seventies. We had a project in Norfolk Canyon that went on for a decade, I think, starting in the late sixties. We sampled Norfolk Canyon with traps, longlines, trawls, submersible; Hudson Canyon, Norfolk Canyon and the Continental Slop between Norfolk Canyon and Hatteras. We caught one blueline tilefish, and it was so unusual nobody knew what it was, except we happened to have Jeff Ross, who Church mentioned, on the cruise and he identified it as a blueline tilefish.

We had a lot of ichthyologists out there with us and people just said never seen anything like that. We never saw a snowy grouper; we never saw a wreckfish. We never saw any of those species that are really now very common in Norfolk Canyon and really dominant features of the fauna there. Things are shifting and so we need to maybe come up with a larger range plan.

On the other hand, there is a cold pool of water in the Gulf of Maine that regularly spills out and wipes out – there have been historical records of tilefish kills in the Mid-Atlantic Bight over the years caused by cold water, and the whole thing may go away almost instantly. It is a very complex problem.

DR. BOREMAN: I would like to yield to Jason. Jason has some items to contribute to the discussion and probably correct a few things that I said, too.

MR. DIDDEN: Not correct, just elaborate. I think there is a sense by some of the Mid-Atlantic Council that when you look at some of the record fish that came out of Virginia early in that fishery; when you look at some similar life history fish like black sea bass or golden tilefish that are separate stocks, there may well be a separate stock. I think there is some of that thinking. I think right now the management unit does stop at the North Carolina/Virginia border; isn't that correct? No? But there is no federal management north of North Carolina.

DR. DUVAL: This is exactly the reason that this is posing such a conundrum is that we have a stock assessment where the unit stock was determined to be coastwide, but the jurisdiction actually stops at the North Carolina/Virginia Border. Jason is correct; there is no federal management north of North Carolina, because the South Atlantic Council did not believe that we could impose management measures in another council's jurisdiction.

There were discussions that occurred in the past in 2010 about extending the snapper grouper management unit up into the Mid-Atlantic. Both councils were in a very cooperative mood at that point. Unfortunately, due to I think the pretty low levels of landings of some of those species, as well as other priorities at the time that were time-sensitive due to the Magnuson Reauthorization, the South Atlantic Council, unfortunately, in my opinion, voted not to move forward with extension of that management unit.

I think if we had we probably would not be in this situation that we're in right now. And also, to be quite frank, if the results of the assessment were rosier, we would not be in this situation right now. Just to let folks know, when the South Atlantic Council approved Amendment 32, which just happens to take up the results from SEDAR 32 back in September of last year, we deliberately made the decision to set the ACL at 98 percent of the ABC, because up until that point on average only 2 percent of the coast-wide landings were attributed to that area north of North Carolina. It was a sort of de facto acknowledgement of the fact that there are landings occurring outside of the South Atlantic Council's jurisdiction. I'll stop; thank you.

DR. BARBIERI: Any additional comments and questions? I think we've had wonderful discussion, a lot of good clarification here. I am not sure that we are ready to get to the bottom of this yet. I would like to hear a little more discussion. Mike Errigo has been trying to capture some of our comments. I had sent an e-mail to Steve Cadrin and John Boreman earlier asking that they go above and beyond actually in trying to help us develop the reporting for this item.

They always contribute plenty to capturing notes and helping with putting the report together. But because of their membership also in the Mid-Atlantic and the Northeast Council SSCs, I thought that it could add a different or perhaps more expanded perspective on this northern distribution or the perceptions from the scientific community up there.

With that, we had some very good discussion, very lively discussion about how the assessment was conducted and clarification of some of the pattern of recent landings. We had a very good clarification from the SSC members of the review panel and a summary of what happened according to their perspective.

But the question still remains, in terms of looking at the composition of the assessment, of how we extrapolate our single-stock unit type of approach for this assessment; and the council really needs to know whether we still believe that is the best way to go or if there is new evidence or new analysis that suggests otherwise.

MS. BECKWITH: The question you just asked is do we want you guys to say if it is one stock, is the way I just understood it. I guess the question that we are trying to get at from the council is more to what J.B. was saying, which is, is this stock still appropriate for management north of North Carolina or north of Cape Hatteras.

Fundamentally that is the question that we're asking of the SSC. If you thought that the new information somehow indicated that there were two stocks or that should be taken into account, then that is certainly one answer. But the secondary answer that we are seeking is, is this stock assessment still appropriate for management north of Cape Hatteras or north of the North Carolina Line? Fundamentally that is what I am seeking.

DR. BARBIERI: Thank you for that clarification, Anna. I will open up for discussions from the committee. My input here into this is that we are talking about SEDAR 32. Steve mentioned the fact that we might have to have an update; that the terminal year that was used for this assessment was 2011.

We have a multitude of assessments that have terminal years that are not necessarily reflective of the most recent conditions. Usually we prioritize those for updates so we can actually get a fresh; you know, we can push the reset button and refresh our perspective on the distribution of the fishery or the stock and dynamics of the population.

It is impossible for us to I guess get to the bottom of that question – at least in my opinion and I would like to hear from others – until we have some quantitative evaluation of this new information, how it fits into an assessment framework, and how it might give us a different perspective.

Whether this is a single stock or a different stock, I don't think we're going to be able to determine right now. The growth evaluation has been suggestive of perhaps a population structure that is separate; but until we have more conclusive genetic information, I don't' think we can get to the bottom of this. I would like to hear from the committee. We can read explicitly what the council motion was and what the request was from the council explicitly for the committee in terms of the information that they want.

DR. SCHUELLER: I guess my view on the discussion thus far is that it seems to be around the table that we agree – and maybe I'm off base here – that the stock assessment is best science available and it does apply. But, really, this sounds like it is a management jurisdictional issue more than anything.

We've made a statement on the science aspect of it, it sounds like at the table, but we don't have control of whether or not the Mid-Atlantic Council decides to use their purview of jurisdiction over that section of the fishery. I guess I am left with what are we discussing exactly?

DR. BARBIERI: To that point, I am going to read – it is on our overview document – the literal motion that the council made: "Direct that the SSC determine at its April 2015 meeting the geographic range covered by the SEDAR 32 Assessment. If warranted, request emergency action to extend regulations proposed in Amendment 32, once the amendment is approved, to the areas that the SSC considers are represented by the stock assessment."

DR. SCHUELLER: It sounds like we're saying this covers eastern Florida through Rhode Island or Maine, or whatever that northernmost landings' state was. Does that automatically mean we're saying they should request emergency action to be extended?

DR. BOREMAN: There are really two issues here, not one. Stock definition is one issue. The other issue is the population dynamics that are represented in the stock assessment. Do the population dynamics in the assessment; are they appropriate for fish north of North Carolina? I haven't heard the word sedentary today, but that is an important factor, too, that this is not a stock – my understanding from the data workshop and others; this is not a species that migrates up and down the coast.

They're sedentary like golden tilefish and they just don't do a lot of mingling. Stock I think, as Steve Cadrin said, would be more a council-driven definition. Now the other question is do the dynamics represented in the BAM model or the model that was used in the assessment; should they be representative of the blueline tilefish along the Atlantic coast or restricted to the blueline tilefish where most of the data were collected?

Because as we're seeing in the recent years, there could be for whatever reason some significant growth differences in blueline tilefish north of North Carolina that may or may not affect the dynamics of the fish north of North Carolina differently than the fish south of North Carolina.

DR. CADRIN: I think starting with Anna's question is what is the most appropriate management unit; is the coast-wide unit the most appropriate for management; as Amy said, that largely is a jurisdictional question. If it is being asked of the SSC for guidance on that; the most appropriate management unit would depend on the identification of self-sustaining resources.

Is the Mid-Atlantic resource of blueline tilefish self-sustaining? That would be the information that we could give back to the councils. But having gone through a bit of this in the SEDAR 32, the information available from my perspective is not definitive. There are sedentary juveniles and adults. There is the potential for connectivity of early life history stages. That is actually in the SEDAR 32 document, which justifies the coast-wide management. It is really unknown, so I don't think that we can answer that stock identity question. The default has been that it is a coast-wide, self-sustaining population.

DR. CRAIG: I guess I would disagree with the notion that there are demonstrated growth differences that would suggest some different population dynamics north versus south. That is one potential explanation for differences in size at age; but given the aging error in the assessment where we had different labs aging different portions, fish from different regions of the stock; given the fact that those northern fish were taken from one sector of the recreational fishery off of Virginia, and then compared to the South Atlantic, which was composed of the commercial recreational and fishery-independent samples; if there is a difference in selectivity or if there are regional differences in growth overfishing; then that would show up as a spatial difference in size at age that is not indicative of some stock structure.

I also say we see very commonly in a lot of, if not the majority of our assessments, latitudinal variation in size at age. We see it in black sea bass; we see it in a number of other species. It is not uncommon. It is not necessarily indicative of spatial structure in the stock or a basis for doing a spatial assessment. We clearly don't have the information for blueline to do any sort of spatially based assessment.

DR. REICHERT: I have a question. Michelle indicated that the council took 2 percent to allow for the catches north of Hatteras. Remind me; did that mean that at that time we assumed that 2 percent of the population was north of Cape Hatteras or was that an incorrect assumption there?

DR. DUVAL: That was based on the landings' stream specifically. That was how that decision was made. Mr. Chairman, while I have the microphone, it sounded like Amy had a question with regard to the council's motion. I just wanted to clarify that, if I might. The first sentence in that motion is sort of our charge to you.

The second sentence in that motion is subsequent action that we would want to take. I just want to make sure that you weren't confused by thinking that the council was asking you to make a recommendation for emergency action, because that is not the case.

MR. CARMICHAEL: The 2 percent is for landings north of the North Carolina Border, not Hatteras, because there were a lot of landings north of Hatteras, between Hatteras and the North Carolina Border. It sounds like we have to make sure there is a difference between the biological stock structure in the management unit.

We agree that the biological stock structure is largely unknown. The management unit is a policy decision; and depending on what management unit is chosen and how it is defined, there needs to be an update to the assessment. Perhaps there needs to be an update to the assessment either way simply because of recent trends, which we know that is the case.

DR. REICHERT: Thank you and that was what I was trying to get at.

DR. BARBIERI: Yes; and that's the issue. There have been some changes posterior to the terminal year of data and SEDAR 32 assessment that, of course, were not captured by this assessment, and this happens fairly often with a number of assessments that we see. Until we have a new one, we cannot really know what the relevance of this new information is in capturing the status of the stock or the dynamics of the stock.

We're going to need to have a new assessment in place that takes this new information into account. I'm almost getting to the point, hearing Steve's and Church's summary that basically SEDAR 32, the geographic distribution and the coverage of the stock as presented in SEDAR 32, based on that information is still valid and still represents the best available information. There might be something else going on, but we are not able to evaluate it at this point. Do I hear anything different?

DR. CRAIG: What exactly is the new information that we're talking about here?

DR. BARBIERI: Well, what I'm presenting as new information is being at the last council meeting and seeing how there were discussions. There were council members from the Mid-Atlantic that are actually members of our Snapper Grouper Council Committee. This change in the fishery that you went over in your presentation that has shown an increase, not like the past in the landings from the northern area.

DR. CRAIG: I guess I would say it is very much like the past. The fish were landed in New Jersey, but the indications were that they were actually caught off of Virginia, which is the same area where we saw the increase in landings since the early 2000s, which was covered by the assessment.

DR. BARBIERI: Can you put your Slide Number 12, because that is the slide that the council actually got to see or data that was very similar to that. That one, 11; can you blow that up? Kevin, the perception was that in the past the expectation is that most of the landings; that this fishery was primarily dominated by landings in North Carolina, and that there have been something fairly recent.

I'm not saying that that stock structure is biological in nature; but something that shows in 2014 that seems to be very different than the previous 10 years. That is what caused some of the questions that came up on whether there were changes in the fishery or does this represent change in productivity of the stock, or whatever, and they decided, well, let's ask the SSC to weigh in and give us some guidance based on that information right there.

DR. CRAIG: All right, but if you look at where those – you are right, there is an increase in landings off of New Jersey in 2014; that occurs in the year that the regulations in the South Atlantic were implemented, and it's coincident with the decline in landings off of North Carolina. But where those landings seem to be coming from is the same region, 632, 636, that were being harvested over the last ten years of the assessment.

What this is suggesting is there is a disconnect between where the fish are being landed versus where they are actually being caught. The suggestion is that they're being caught in the same region where the fishery has been prosecuted since the early 2000s; they are just being landed at a different location further north.

DR. BARBIERI: Right, but the council wasn't asking the why; it was just asking for us to reevaluate this, because to them that information in Slide 11 represented a pattern that they had not seen before.

MR. CARMICHAEL: If where the fish are landed is different; then doesn't that affect the 2 percent that Michelle mentioned earlier? If 2 percent was allocated to the Mid-Atlantic Region based on where fish were reported as being landed before; then that number at least would seem to be up for reconsideration, because that is a management unit issue.

DR. CROSSON: Is that 2014 decline in the North Carolina landings due to management measures that were put in? That is not that the stock suddenly disappeared; it is that there were emergency measures put in because the stock was overfished.

DR. BARBIERI: Right.

DR. CROSSON: Okay, so that is really not as sharp a line that it looks like. It just happens to be that 2013 was a little bit lower; and then 2014 there were new management measures that were put in, and that is what makes it look like there is this big steep drop. I don't see something that is not there, but at least it is not biologically driven.

DR. ERRIGO: I was just going to say, yes, the drop was because the ACL went way down in North Carolina; and the increase in 2014 in the Mid-Atlantic was all off of New Jersey. And actually look at the permits that were landing, suddenly that show up in 2014, are North Carolina permits. The same guys who were landings the bulk of the landings in North Carolina suddenly showed up in New Jersey in 2014.

DR. SCHUELLER: I guess I wanted to just – I think I agree with you, John, that 2 percent maybe is the parting question, but I guess I would also say I don't believe this brings new information to light in the stock assessment itself. I don't think that it is going to change selectivity or anything like that; because the fish are actually being caught in the same place. The same information is being used; it is just landed somewhere else. That doesn't play into the stock assessment in any way. It is a management issue.

DR. BARBIERI: Right; but one way or the other this is the question that actually the council is asking us. What they saw was that picture right there. Their point is for us to have this kind of discussion and then provide them with a report that explained those points. Let's make sure that we capture those things; because what they saw were landings up in that blueline area increasing, and asked us to look into this, look at the data, look at where the fish are being caught versus landed, look at all the other biological information, and then provide us with a report that either supports our previous conclusion that the assessment is still applicable to the entire coast or if we have enough different information to support otherwise.

MR. WAUGH: Just to clarify something; that increase, there were North Carolina vessels landing up there, but there were some local vessels as well. That whole increase is not just North Carolina vessels. I wouldn't get hung up on the 2 percent. The reason we used the 2 percent is because with the assessment results, the data that went into the assessment; approximately 2 percent of the landings came from the Mid-Atlantic area. We took 2 percent of the ABC and the ACL and allocated it to account for landings in that area. Were the stock assessment to be redone and we were to get a different ABC; then we would look and do a different allocation that would be applicable at that time in the future.

DR. BOREMAN: Just a clarification on the second bullet; it said if left as a unit stock for management, SEDAR 32 is BSIA, needs to be updated. Again, the management stock ends at North Carolina/Virginia Border. That needs to be clarified there, because right now the management unit stock ends at the border and doesn't go the entire range.

MR. DIDDEN: Just a clarification; one thing on this slide, there are two labels on this. One is out of the VTR reports and the other is dealer; but the slide with the ramp-up is dealer reports. There is no kind of sense of where they're being caught on that. Now further on with the VTR information; the ramp-up that we saw there related to northeast permits came really in 626 off the coast of Virginia's DelMarVa. Maybe this is a question for Kevin; was that where the majority of landings were coming from in 626? Again, so it was a bit of a change. You had that ramp-up in 626; and so there was some locational change.

DR. CRAIG: Yes; so historically if you look at the gray-shaded areas, those three statistical areas have accounted for 85 percent of the landings over the last 10 to 15 years. The blue line shows the decline in 632 and 636 combined, which is North Carolina and Southern Virginia. The red shows the large increase in 2014; and 626, which is Central Virginia. The decline occurs in areas that would have been influenced by the management regulations in 2014. The increase is the next statistical area to the north of that.

DR. BOREMAN: We're looking at the proportions here; we're not looking at absolutes. When you say a decline, you are basically saying the switch in the majority of landings moved from one area to the other, so be careful how you characterize.

DR. CRAIG: That's right; that access there is a percentage; or the Y axis, sorry.

DR. REICHERT: Kevin, can you put up the slide with the landings? I thought you had one with the actual landings.

DR. CRAIG: That may have been the recreational. Now, this is the recreational for-hire, so this isn't the commercial.

DR. REICHERT: Well,, the previous slide; not the one with the recreational landings. You've got a total there. It said the total of the ones that are listed there. In other words, what are the patterns south of Cape Hatteras? Are they similar to some of these patterns we see here or were they similar to the ones of the last couple of years that were used in the stock assessment?

DR. CRAIG: The patterns in, what, south of Hatteras?

DR. REICHERT: In other words, in some of these areas, if there is a decline or an increase, do we see that same pattern in the area south of Hatteras? Do you know what I'm trying to –

DR. ERRIGO: I think I know what you're saying. The thing is that in the latter part of the time series, the bulk of the effort shifted north of Hatteras already, so there is very little – the effort in the fishery for blueline tilefish between Hatteras and Canaveral is actually pretty small. Most of it is occurring north of Hatteras and south of Canaveral for the last five years.

DR. REICHERT: What you're saying is the majority of the blueline tilefish landings after the terminal year of the stock assessment were north of Cape Hatteras; or is that incorrect, because that is what I think you're saying.

DR. ERRIGO: I'm saying that even before the terminal year, the bulk of the commercial landings were north of Cape Hatteras.

MR. HARTIG: Let me add one more thing. There is an order of magnitude difference in the landings off of South Carolina in the last couple of years from the longline fishery, so it is occurring in areas other than the two areas off of North Carolina and in the Mid-Atlantic Region. Off of South Carolina there are large numbers of blueline tilefish that have reconstituted in that area as well. There are substantial differences in the last three years compared to the way the assessment was done before in landings, in a number of areas not just in the northern area.

DR. BARBIERI: That is really good to know.

DR. DUVAL: I just have a technical question. With regard to the statistical areas, because those overlap with statistical grids for the logbook for the South Atlantic; some of these guys who also have northeast permits presumably they have to fill out both VTR reports and South Atlantic commercial logbooks.

Statistical areas like 632, 636, which only contain a small portion of southern Virginia; snapper grouper commercial-permitted fishermen are having to report in two places, because I'm pretty sure if you have a northeast region permit, filling out a VTR is a requirement; and Jason is nodding his head.

Obviously, filling out the logbook is a requirement for the fishermen that we manage here in the South Atlantic. I am not assuming any kind of double-reporting or anything; I'm just trying to clarify where fish are harvested from. When you have a statistical area that is split like that; it makes it a little difficult to figure that out.

DR. CRAIG: I think it is a little butterish than that because of the longline fishery in particular is pretty nomadic. These shifts that we're talking about among statistical area is on the order of 5,200 miles, so someone who is permitted in two regions could land in any particular region and land or could catch in one region and land in another region.

DR. DUVAL: Right; I think it is just a little bit confusing to see statistical grids from the northeast that is covering management regions in the southeast. I am not making an assumption about the movement of the vessels that participate in the fishery. I am just trying to clarify what set of information is being used; is it VTR reports, is it logbooks from the South Atlantic, is it dealer reports?

DR. ERRIGO: When I was talking about the landings from the South Atlantic and that trend, I was using South Atlantic logbook data, only South Atlantic logbook data, because I didn't have access to the northeast VTRs, just the summary. I was looking at the South Atlantic data to see in the South Atlantic, because that is where the bulk of the information that went into SEDAR 32 came from.

I actually saw the shift, especially in the longline sector. I can tell you what year it shifted from south of Hatteras up above 35 degrees latitude. All of a sudden the number of trips above 35 degrees latitude just shot up in one year; but that is just South Atlantic licensed commercial fishermen. I didn't have access to the VTRs.

DR. CROSSON: I just wanted to make sure that when I read what we're being asked to answer up there I see recommend stock geographical range represented by SEDAR 32 assessment, all right. I hear a lot of what we're saying right now is we're trying to give these recommendations about what the stock's actual real range is based off of all these different evidence that people have seen over the years.

I don't think there is a problem with that; because I think we are being asked to answer two questions here; what do we generally think about the range of the stock and whether there is a separate stock north of the Virginia Border, but make sure at least we answer – and that is still open. I would think we would need to make sure we at least answer that question, which I think we can answer. Based on SEDAR 32, what do we think the recommended stock range is? I think we do have an answer based off of what Kevin has said, Steve has said, and Churchill has said.

DR. BARBIERI: Right; and I agree completely, and I think I was going to defer to Steve's previous statement, because he did this month or so review of the review report and some of the other information that had been put together and summarized that in a way that I thought really beyond a certain point of the discussion captured the committee's general feeling about this. Would you please reread that little portion there that you had?

DR. CADRIN: That was quite a soliloquy that I gave, so I'm not sure what aspect of it. Really it was that – I'm going to try to pick from my notes. I went back through the issues. For the SEDAR 32 terms of reference; i.e. the existing management unit; the spatial population structure is a source of uncertainty, but the SEDAR 32 methods are still the best scientific information available for assessment in management.

Considering the large increase in recent catch, an update assessment may be needed. I didn't see a better standard CPUE index available, but I think that is why that conclusion was made. If the management unit continues to be coastwide; then SEDAR 32 is still the best science available. If the Mid-Atlantic Council and South Atlantic decide to split the management unit; then catches from the northern unit would be removed from SEDAR 32; but again a policy decision needs to be made. I think that first bullet is what you were looking for.

DR. BARBIERI: That is exactly it, Steve.

MR. CARMICHAEL: Given that, in the earlier discussion the management unit isn't coastwide. The management unit ends at North Carolina. SEDAR 32 laid out a stock unit, which they defined as coastwide and so that creates this problem. We've dealt with it with a lot of other stocks where there is the biological unit and then there is the management unit; and in those cases the councils come together in some way and decide who gets what piece of the pie.

We do that with black grouper. There is a little bit of the hogfish stock that is in the Keys that is actually in the Gulf of Mexico management area, which we'll talk about later. That is not

dissimilar from this in a lot of ways, because there is a bit of this population certainly based on landings, which is beyond our jurisdiction.

Based on the past, it was 2 percent. Based on where people are reporting, it looks like it is a little higher than 2 percent in the most recent years, largely reflecting the management, perhaps. But based on what Kevin has shown, it seems like the fish are generally coming from the same area. You have the assessment, which maybe is covering fish up to 626 or whatever it is.

Then the management of that and the share that may go to either jurisdiction could vary, depending on where people happen to actually report their fish. Does that say that if the Mid-Atlantic proceeded with – and they are proceeding with – their own management of this and doing more in that management unit; we would need an update that perhaps splits it out by management units.

It wouldn't be north of Hatteras; it's got to be north of North Carolina as that third bullet says. I think that should be corrected as well; not data north of Hatteras unless we were to define a stock that broke at Hatteras, and in which case there would be a little bit of that stock which got to the South Atlantic's management unit. The bulk of that stock may go to the Mid-Atlantic management unit; so the tables could be turned a little bit if someone were to prove that there is a stock which exists north of Hatteras.

DR. BARBIERI: Okay, any additional summary comments? I see the management perspective that adds an additional different twist to this discussion, but I still feel that SEDAR 32 and the review report and Steve and Church's summary, for the information that we have available right now is still the way to go.

I don't see enough at this point; and perhaps another assessment, an update on this assessment may suggest something different, maybe completion of some of these other studies. There are genetic studies. I spoke with John Goad about this. I know that Tanya in South Carolina is also doing some studies.

Goad is really, really interested, and he would like to discuss this quite a bit, because he would like to get some more of those samples as well. At this point, all the information that I've seen today to me still suggests a single stock and that this assessment – now how that translates into management by two management bodies is a twist that I'm not sure I am prepared to address at this point.

DR. CROSSON: Also that SEDAR 32 indicates that this is one stock, right?

MR. CARMICHAEL: Well, that was an assumption. They didn't have genetic studies to back it up, so it is kind of one of those, I don't know, I guess a chicken-and-egg argument.

DR. CADRIN: I think the location of landings and the location of fishing is a real important part of this, because – thanks, Michelle, for the correction – actually the way SEDAR 32 is written it establishes the FMP jurisdiction right off the bat at the North Carolina/Virginia Line; but that is not inconsistent with using landings up to Rhode Island.

From what we're seeing here, the same permits, same fishing grounds that were landed in North Carolina in 2013, landed north of North Carolina in 2014. I think that we are consistent with the management unit. I think just we need to be careful about it; that is because we're using landings that came from north of North Carolina doesn't mean that those aren't in the management unit.

DR. BARBIERI: We are approaching the conclusion for the day here, but any additional points of discussions, questions or clarifications? We have Kevin here today, we have Jason, and we have the ODU scientists. Of course, during our last meeting day, we usually have some time to perhaps revisit some of these issues and continue discussion after we have some more time to think about some of these topics. But having them here today I think helped us address questions. We sure appreciate all of you having made the effort to come over and give these presentations. It really has contributed to the discussion.

DR. BOREMAN: I just can't let this go; not your summary, that is fine. It is just this genetic aspect. I think that is irrelevant to what we're talking about. That is one way to define a stock; but really if we wound up finding out that there is no genetic difference among these fish that come from Rhode Island or New York or North Carolina or South Carolina, is that going to make a difference?

I think we need to look at the data and need to look at the landings, how they should be managed in concert with the Fishery Management Council. Whey do the management side; we handle the science side; but holding out for a genetic study I think is probably a bit overboard at this point, overboard in the sense that putting too much faith in the genetics. You can define the stock anyway you want. Genetics is just one metric.

DR. BARBIERI: Right; and that is a very good point, John. I was kind of thinking about the principle. It is Russell's Equation, right? One of the things they are adding to the population is things they are removing from the population. I am thinking about the unit stock; the reproductive capacity of the stock as a whole and producing recruits is whether we have something north of North Carolina that is self-sustaining and should be assessed differently.

We'll look at the hogfish assessment that broke things down into those potentially self-sustaining populace. I was thinking about that since, but that is restricted to that discussion and doesn't really encompass all those other issues that should be taken into account.

DR. GRIMES: I probably don't really need to say this. I was about to say the same thing, John, I agree with you. Genetics studies are frequently a one-way test. If you find big differences, you have something; but it takes a very small percentage of larval recruit or larval mixing to make them genetically homogenous. We need to know about ecological time-scale differences and not evolutional time-scale differences, and that is really what those two tell you. We need otolith microchemistry or microstructure or something like that.

DR. BARBIERI: Okay, we still have plenty of time then to go over our last couple of items. Item Number 7.

DR. REICHERT: Well, we may come back to that when we talk about SEDAR; but do we recommend anything in terms of assessments priorities for blueline tilefish?

DR. BARBIERI: Marcel, in terms of the SEDAR assessment?

DR. REICHERT: Yes; we talked earlier about maybe an update is very helpful in terms of making decisions. I know that depends on what we want to include in updates; but I think it would be good for us to put the priority on blueline tilefish. Are we collectively thinking that blueline tilefish should be a high priority as an update or should other questions be asked first; for instance, stock definition or something like that? As I said, the next agenda item is the SEDAR schedule, so maybe we can pick that up at that agenda item; but I think it would be good for us to indicate that.

DR. BARBIERI: With that, we're going to move right along into the SEDAR activities portion of our agenda. I would expect as usual John Carmichael is going to walk us through that Table 1 in our overview document that lists a number of assessments coming up for the next several years.

Then the action items for the committee to review are the revised SEDAR 41 schedule, so let's review and comment on the revised SEDAR 41 schedule, and consider if changes are needed in SSC representation. There have been some changes in schedule that may compromise SSC attendance, so this is an opportunity to revisit SSC participation in SEDAR 41.

Review red grouper update terms of reference; review the black grouper and yellowtail snapper proposals and terms of reference; recommend whether those assessments are conducted through the standard or the benchmark process; consider SSC representation at the SEDAR data best practices procedural workshop; and then review the council's assessment priorities and provide guidance.

MR. CARMICHAEL: Yes; you gave a good summary of what we need to talk about. Julia will come up and talk about the terms of reference. There are some questions about grouper, so I think we'll just let her lead off with that because we've talked about a lot of this other stuff and in interest of time go ahead.

MS. BYRD: In I think it is Attachment 10, the last page – John will pull it up now – there are terms of reference for your review for the red grouper assessment. It was an update assessment and so the terms of reference reflect that. However, I guess John will talk about – you can see this on the screen that Mike has up right now.

Originally the red grouper update assessment was scheduled to come to the SSC in April of 2016. That has been delayed, so now there is a data deadline in August of 2016 and its estimated completion date is in 2017. The terminal year has been increased to 2015 to account for that delay. One thing that we did want to make you guys aware of is that the SERFS video index data may be available for potential inclusion in this assessment.

If that were going to happen, that would need to change from an update assessment to a standard assessment. We were hoping to get feedback from you guys whether that is something that we should look into. If that is something that we want to consider, the terms of reference would need to be modified. Then we would need to put together a schedule for a standard assessment; and standard assessments generally take a little bit more time than an update assessment. Again, this isn't going to be starting until April of 2016; so if you guys are interested in the

consideration of the video index, we could update the terms of reference, put together a schedule, and it could come back to you guys for review at your fall meeting of this year.

DR. SCHUELLER: What indices were included in the red grouper assessment during the last assessment; so SEDAR 19? I guess I'm just wondering if it is worthwhile to spend the time for an index that may be, what, five years maybe. If there is another index that already is doing the job, I'm not sure it is – I don't know; I don't know anything about this.

MS. BYRD: I know that MARMAP trap index was included; that fishery independent, and I can't remember what fishery dependent from the top of my head. But I know that the MARMAP trap index was used.

DR. REICHERT: While Julia is doing that; one thing we can do – and I've put my MARMAP hat up now – is look at the comparison of the video index with the trap index and discuss that with our partners. I am not sure how long that would take, but see if that would provide a different pattern. I'm just throwing that out there. I am not sure whether that is useful.

DR. SCHUELLER: I guess then the question becomes if it shows the same pattern, great, we keep using MARMAP. If it shows a different pattern, then we have to discuss whether MARMAP or the video survey is better. If MARMAP has a longer time series and it is effectively capturing the population trends, then we come back to the same point, I guess.

MR. CARMICHAEL: The answer is it used to be the MARMAP Chevron trap. That was the only fishery-independent index. It had commercial handline, general recreational and headboat. If you had the long time series, I suppose MARMAP Chevron traps. That is the question to you guys exactly – and I think Amy summed it up well – is you are the ones that are going to have to make recommendations on this assessment and determine that it is best scientific information.

If you get it as just an update, it won't include the new video data. You could have the video data considered, but it will require a standard. Standards are in the gray area where you have to decide is it enough of a change that you are comfortable letting the changes be made in an abbreviated assessment development process and you are the reviewers versus you go wow that's a really big change and we would rather have independent peer review.

That is your prerogative to decide. You could make the choice to consider that index and do the work and put it in there or you could say you know what, the index we have covers a longer time series as mentioned and a couple more years of a video may not be quite enough to overthrow that just yet.

DR. BARBIERI: Any suggestions or recommendations from the committee? I think it would be good to clarify as well that these SSC recommendations would be forwarded to the council for their review; and all of this would be discussed as part of the SEDAR Steering Committee meeting to come up with some final decisions.

But this committee basically is having the opportunity to provide some additional input on whether it is warranted to go to something a bit more complex in terms of how this is structured or if we just stick with the update as presented and follow the same terms of reference and assessment type.

DR. REICHERT: Besides the video index, is there any other new information that we may think may be available; other indices, work that has been done since the last benchmark?

MR. CARMICHAEL: That is actually a question we sort of put to you. Folks at SEDAR come to you as people at the agencies and stuff and doing the research to say do you know of anything else? If you knew of something, then we should consider that as well.

DR. REICHERT: Well, that is the question I am throwing out here, because that may help us. If there is other significant information, that would make the decision whether or not to go for a standard easier or not. I am not aware of any research that may significantly affect an assessment but others may be.

DR. BARBIERI: Just for the sake of discussion, my limited experience with the catchability of red grouper in the South Atlantic using Chevron traps, a study that we did maybe ten years ago off the east coast of Florida indicated that red grouper have a fairly high catchability in Chevron traps.

The Chevron traps may not work for everything as a way of picking up the signal, but it looks like with red grouper that at least our perception down in Florida that this was not a problem. I wonder whether there would be any significant contribution from the camera video survey, if the signal is already, as Amy pointed out, properly picked up by a long-term existing index.

MS. BYRD: I guess one other thing I'll note, too, is I had kind of informal discussions with some of the SEFIS folks. They hadn't had an opportunity to go back and look at the data, but their general thought or their memory said that when they normally saw red grouper in the videos, they also saw them in the traps.

DR. BUCKEL: This is a question for Marcel. I know some of the index development; the cameras are always on the trap. I know, and correct me if I'm wrong, you could look at the trap data alone or the video data alone, but aren't there some index development where it is a combination of the two?

If that is the case, if that is a possibility, I would argue for an update where it is the MARMAP time series, but that MARMAP time series now has this added video in the recent years instead of going for the more complicated standard. Then if it ends up being split, then so be it, it is just a few more years of data.

DR. REICHERT: To answer your first question, yes. I forgot where that stood, but currently people are looking into combining the two videos. I think there is a paper out, I forgot from where, so, yes, we are looking into that. To the second part, I am not entirely sure how that would help, because you have a couple of years where you didn't have a combined and then the rest of the Chevron trap series do not have that component in it. You still would have those two indices.

SSC MEMBER: From my understanding, the way they are combining those is they're using the video trap to correct for catchability in the Chevron trap. They develop their model for the five years or however many years where they have the overlap; they could apply that catchability model back in the past to correct those years where the data doesn't overlap.

DR. REICHERT: Yes, and that could possibly be done. I think there is also development of a combined index that is not necessarily correction, but in a true combined index. That was what I was referring to, but the catchability that could potentially be used. We can certainly look into that.

MR. CARMICHAEL: In the interest of productivity, the SEDAR Steering Committee's guidance now is it needs to be an update unless there is a good justification to do a standard or a benchmark. If it is a well, sort of, maybe, this could possibly help it; I don't know that is going to carry the weight at the steering committee.

If we think there is a way of improving our existing indices bringing in the video, then to me that sounds like something we would be better off doing across the board for a group of species, get that worked out in a dedicated process of some sort, and then you have it available to bring in through other assessments. I think there is a lot of risk in the consistency arena if we start kind of doing this stuff on individual species, particularly through the more abbreviated standard process than the benchmark.

DR. REICHERT: I couldn't agree more.

DR. BUCKEL: MARMAP data was used before; and if you did an update, you're going to use that again. Would you not include the larger geographic coverage, because that has been a huge change in the MARMAP? It may be just as big of a change as some video catchability, having a much broader spatial coverage, geographic coverage.

MR. CARMICHAEL: I would think presumably when they recalculate the CPUE, they will include the full range, but I suspect that it certainly could be up to whatever the analysis tells them. I would expect the methods allow that.

DR. BARBIERI: Okay; so if I am hearing the committee's input correctly, especially based on what JC just discussed regarding the SEDAR Steering Committee; I don't see any overwhelming desire to upgrade this to a standard assessment and that we're going to go forward with an update using the TORs as presented, right? Okay, Julia, you have it for this item.

MS. BYRD: Okay, so then the next thing I wanted to briefly go over is SEDAR 41; and like Luiz mentioned, there is an updated schedule. Just to remind you guys where things left off, there was a data workshop. SEDAR 41 is a South Atlantic assessment for red snapper and gray triggerfish. There was a data workshop that was held in August of 2014.

A working paper was submitted after the data workshop that questioned the validity of the early years of the headboat data. The panel thought that was a very serious issue and the assessments were delayed until an evaluation of the headboat data was complete. That is where we left everything off.

The Science Center is conducting the headboat data evaluation. That will be done in time for this new schedule that you see on the screen. Basically what happened is that everything got delayed about a year. The terminal year of the assessment was changed to 2014 to account for that delay, so we can include an extra year of data.

The data workshop is going to be abbreviated. It is going to be August 4 through 6 in 2015. We're having an abbreviated data workshop because people did a lot of hard work at the data workshop last year, and we want to make sure that we're building on what they're doing. The idea is that we're not going to re-discuss all the decisions that were made at the 2014 data workshop.

When we revisit those decisions where there is new information or new analyses that are available, otherwise the datasets will be updated with 2014 data using the decisions that were made at the 2014 data workshop. Again, the schedule is changed, so the data workshop is in August. There is an assessment workshop November 17th through 20th, and then the review workshop is March 15th through 18th.

What happened was there were appointments made for all of these workshops. I contacted the SSC folks who were appointed to participate in these workshops to see if their schedules would accommodate this new schedule for SEDAR 41; and for the most part people were able to do so. Just to remind everyone, for the data workshop we have George and Marcel as the folks who will be participating in that representing the SSC.

For the assessment workshop we have Doug and Luiz and Marcel and Will; and then for the review workshop, Luiz will be chairing that. Then we have Church and Jim Berkson was actually the second reviewer. Since Jim Berkson is no longer on the SSC, I wanted to give you guys an opportunity or for you guys to consider if you would want to replace his position on the review panel. He was one of the panelists. Is there any interest in replacing him or is there any interest in anyone participating in the review workshop? Again, it is going to be March 15th through 18th, 2016, and it is going to be in Atlantic Beach, North Carolina.

DR. BARBIERI: Please don't everybody just jump in all at once. I don't think that we have to close this decision right now.

MR. CARMICHAEL: We'll give you until October, better name somebody by then. The end of this meeting would be great.

DR. BARBIERI: Yes, ideally, we'll be revisiting this discussion during the next couple of days.

MR. CARMICHAEL: We'll get a short list or something.

MS. BYRD: Okay; and then I had one more thing that I wanted to mention to you guys. I wanted to basically update you on a procedural workshop we're doing coming up with kind of data best practice recommendations for SEDAR data workshops. This was mentioned to you guys at the October meeting.

I just wanted to quickly remind you what we're trying to do with this workshop, update you on our progress, and then we're interested in getting SSC participation, so we'll be asking to see if anyone is interested in participating in the workshop once I kind of update everybody on what we've done so far.

Up on the screen right now is Attachment 9, and this is kind of a workshop overview document that we put together for this workshop. Just to remind everyone, the goal of this workshop is to

identify common decisions that are made in SEDAR data workshops and then to develop best practice recommendations so that we can streamline and support future assessments. For those of you have been involved in data workshops, you know that many of the issues that are discussed are the same from workshop to workshop regardless of the species or the regions that were being worked in.

The idea is that if we come up with standardized approaches for dealing with some of these common issues, then the data workshop panelists can spend their time on new issues or issues that are relevant to that particular species. The hope is that this would eventually help maybe even shorten data workshop reports and shorten data workshops.

I am not planning to go through this document. If you have any questions about anything, if you have had an opportunity to look over it, that is fine; but this overview document contains workshop objectives. It has the terms of reference for the workshop, which I'm scrolling through right now.

The in-person workshop itself is going to be the week of June 22 in Atlanta, Georgia. Just to update you on the progress thus far, we've had an organizing committee that has been meeting since December of 2014, and we've been meeting at least monthly to plan this workshop. I did want to note that this first term of reference, which is developing an inventory of these common data issues, has already been done.

We've used what we're calling a focus group approach. What that basically means is that we've gotten people who are typical data providers for all of the different regions together and held webinars. We basically used an Excel form to put together an inventory list of all of these issues that are common or reoccurring that may be suited to best practice recommendations.

The organizing committee met April 17th – I guess that is a little over a week and a half ago or something like that – and prioritized those issues to discuss during this workshop. The last thing I'll say before we ask to see if anyone is interested in participating in this workshop is there are going to be a lot of diverse issues discussed at this workshop.

For the focus group webinars that we had, we had five different webinars; a commercial group, a recreational group, a life history group, an indices group, and a catch-at-size age group. There are a lot of different people who are going to need to come together at this workshop. The way we're planning to structure the workshop is a little bit different than your typical data workshop.

We're planning on having two levels of participation in the workshop. One will be what we're calling a best practice panel and then we'll also have technical groups. The technical groups, there will be five different technical groups, the five that I just went over; commercial, recreational, life history, indices, and catch-at-size age. Those will be made up of the experts at the data workshop to make the decisions regarding those datasets.

Then the idea is to have a best practice panel, and those will be made up of members of SSCs or cooperator-equivalent representatives from each of the assessment teams from some of the key data providers. The idea is that when best practice recommendations are being discussed, this best practice panel will participate in the discussions and the recommendations for each of those five groups.

However, the people who are in the technical groups will just be involved in the decisions that are relevant to their group, so, for instance, if you're making decisions about commercial datasets, the commercial technical group and the best practice panel would be making those decisions together.

We did that so there is one group kind of providing continuity over the whole thing who is involved in all the decisions. That is just it in a nutshell. If you guys have any more questions about that, I am happy to answer them or give you more details. But what we're interested in is having a member of the SSC participate on the best practice panel; and then we're also interested to see if SSC members are interested in participating in any of the technical groups as well. That is what we are looking for at the meeting from you guys.

DR. BARBIERI: Thank you, Julia, for that very good thorough presentation on what this is and what the objectives are and how we try to get there. Are there any volunteers so far that would be interested in participating in this workshop? How much does it cost for us to participate?

MR. CARMICHAEL: It's free.

DR. BARBIERI: It's free. My gosh; for those of you that had not realized it, you actually get to go for free. You only pay for your own expenses?

MR. CARMICHAEL: It is all expenses paid to Atlanta this time.

DR. BARBIERI: Tracy, I'm seeing a lot of enthusiasm.

DR. VAUGHAN: I would volunteer, except on the 23rd my cruise comes into Portland, Maine. We did one of our SEDAR peer reviews years ago in Atlanta.

MR. CARMICHAEL: Marcel will be there.

DR. REICHERT: I will be there, but I'm not going to be there in my capacity as an SSC member.

MR. CARMICHAEL: We really do need someone by the end of this meeting; because as you can see, it is coming up quick.

DR. BARBIERI: I think we will be making some progress on this offline. We'll let you know, Julia.

MR. CARMICHAEL: The next is the black grouper and yellowtail snapper where you are going to fill us in on what your plans are and what we can look forward to.

DR. BARBIERI: Well, this is going to be a very short report, because we opened up Pandora's Box in trying to understand the inner workings of SS. It is fun in a kind of twisted way, because it is a multidimensional alternate reality. It has been very educational. To make a long story short, we held a little short workshop with the Miami folks to discuss some of these issues; and we are going to have to probably have Rick and some of his protégés come down and work with us for a while to help us address some of these issues.

We are making progress, but we are not ready to really propose anything conclusive as far as how we would get this whole thing structured, because we have at this point limited information of all the toggles and switches and how the wheels can come off the wagon. One thing I can tell you is that by October – right now we had that one workshop with the Miami folks and that was very productive. It was a three-day thing.

We are going to continue that through the summer, and I will bring an update in October. But one of the things that we were discussing internally is the fact that having this change in model may or may not – I mean changing software of the modeling framework that is going to be used may not be enough to be considered a benchmark.

But after this initial evaluation, we kind of feel that it would be better than that way simply because having – besides the SSC, which I think can provide a lot of very good input – having some independent experts address some of the issues we may have with black grouper. Yellowtail snapper is really scheduled for 2017, with terminal data in 2016. By that point, I'm pretty sure that we're going to have all of this much further along. The most immediate real issue is black grouper. We're going to be evaluating during the summer, and I'll come back with a more conclusive report in October.

MR. CARMICHAEL: You may consider maybe a little more rigorous standard process I think when considering the benchmark. Think about if you have a lot of new data to evaluate through a data workshop and whether or not you feel the need for the independent peer review versus maybe a strong standard workshop group who really know the model to help with configuration is something to consider.

DR. BARBIERI: That is good. Usually we work with the SEDAR program and get a lot of advice from you guys on how to structure those assessment situations. That is a very good suggestion that will make things easier but not an overburden on the team. Those types of things are going to be explored.

MR. CARMICHAEL: That brings us to the schedule. We already talked about MRIP. Here is where things stand now, and there is a change and Mike made it in his version on SEDAR 48, the black grouper, which we were just discussing. I moved that on the calendar but didn't change the date. It should be in August, 2016 as the current scheduled completion. It says 2015, but that is a typo on my behalf.

You can see where things stand now; and this reflects the red grouper change, which was mentioned. This came from the Science Center as part of the shifting of red snapper and gray triggerfish, and pushing everything along the calendar. When we get into 2017, as we can see, we have the update vermilion and greater amberjack scheduled in there and then scamp and gray snapper, which they are not fully listed in the schedule in terms of terminal data years or assessment complete; that is yet to be done.

A couple things at work there, one is the MRIP and what the 2017 priorities will be. Another one is a recommendation from the council that before we do a benchmark we do some work into this stock ID issue to avoid the problems like blueline tilefish. They were referencing cobia and hogfish as two species where quite a different picture of the stock structure emerged. Rather than get in this type of situation again, the council would like to have that worked out.

Rather than put the burden on the scientists to come up with something or end up with this separation between science and policy, they would like to work that out in advance. I expect that could affect these next benchmarks as well.

DR. CADRIN: I think that is wise thinking, because often you need a different set of experts for the stock identity conclusions than you do for developing the stock system model and data.

DR. BARBIERI: Okay, any additional comments or questions for John or Julia regarding the SEDAR schedule? I think we have addressed really all our action items here.

MR. CARMICHAEL: Should we say more about blueline? You can see it here scheduled for an update; data through 2015 and getting done in January 2017. I'm just thinking about the discussion about the difference between where fish are caught and where fish are landed and how you would do the separation between management units.

I guess we should make sure on the advice that when the update is done, rather than basing the separation of management units on – and the allocation of fish to management units; rather than basing it on where fish are landed, maybe actually base it on where fish are caught. I think that could change things quite a bit.

DR. REICHERT: A practical question for blueline tilefish; is there an estimated date for the data, so that we know?

MS, BYRD: August 26th.

DR. REICHERT: It was in one of the other documents, right?

MS. BYRD: Yes.

MR. CARMICHAEL: The data is August 26 for those that provide data. You will be hearing quite a bit more on this pretty soon.

DR. BARBIERI: We've completed the SEDAR update on SEDAR activities. We have one item left that had been planned on our agenda to be completed today, which is a quick update that Marcel would give us on the Southeast Reef Fish Survey. Remember that pretty much every year Marcel comes and gives us an update on the survey.

Marcel said that he is flexible to present this tomorrow. We can look at the schedule tomorrow. Unfortunately, Marcel is not going to be here on Thursday. That is the thing that I was thinking, we have a lot of fairly long items for tomorrow.

DR. REICHERT: If we need to push this to Thursday, I can see if we can present that on Thursday without me being here. You guys have the presentation, so I can present that later or just open the floor for some questions in case people have some. I'm flexible. If necessary, I can see if I can make arrangements for Thursday, if we have some time at that time.

DR. BARBIERI: That is great, because I think this has been a fairly intense afternoon for all of us. It would be good to recess for this evening. I think that tomorrow we start at 8:30, and we're

going to start with the Socio-Economic Panel Report and then proceed with the other items as described on our agenda.

DR. ERRIGO: I just wanted to ask for clarification. Are we going to go back through just to clarify some of the consensus statements, because I didn't get a clear and concise – I think I know what you guys settled on for the blueline tilefish assessment and what is going on there, but I just wanted to make sure that I captured the consensus statement correctly. Will we review that like on Thursday?

DR. BARBIERI: Yes; we're going to have some time to revisit that; and then, of course, as always our notes are going to be circulated by the entire committee and everybody will have the opportunity for input. I agree with you that there wasn't anything there that kind of presented a cohesive consensus statement. I think we can get to that on Thursday morning or late morning Thursday that we should have time for that. Okay, with that, the meeting is recessed and we reconvene at 8:30 tomorrow morning.

(Whereupon, the meeting was recessed at 5:30 o'clock p.m., April 28, 2015.)

The Scientific and Statistical Committee of the South Atlantic Fishery Management Council reconvened in the Crowne Plaza Hotel, North Charleston, South Carolina, Wednesday morning, April 29, 2015, at 8:30 o'clock a.m. and was called to order by Chairman Luiz Barbieri.

DR. BARBIERI: Considering that we have a very full agenda planned for today, I would like to call the meeting to order and have the SSC reconvene this morning for Day 2 of our spring meeting. We are going to start with Agenda Item Number 9, the Socio-Economic Panel Report. I think SEP Chairman Whitehead will be presenting the report.

I just wanted to let you know yesterday we had planned potentially for a presentation on the Southeast Reef Fishery Survey update, the MARMAP plus all the SERFS collection of surveys. We didn't have time to do that yesterday and we had discussed the possibility of having that handled tomorrow morning if we had some extra time.

It now looks that tomorrow will not be possible. Marcel won't be able to be here and join us tomorrow, and he doesn't really have any staff available with enough knowledge and experience with the survey to be able to give that presentation; so we are going to try to do our best to squeeze it in sometime today. We have until 5:30, which just adds a little bit extra to our agenda. I just thought I would give you a heads-up on that. Yes, it will be a ten-minute presentation.

DR. WHITEHEAD: The Socio-Economic Panel convened yesterday. We had several things to do. We reviewed economic analysis for the Snapper Grouper Regulatory Amendment 16. We are going to report on that when it comes up on the agenda today. That is black sea bass. We reviewed possible actions in Snapper Grouper Regulatory Amendment 23.

We provided guidance on social and economic evaluation measures in the Draft System Management Plan. Actually, we didn't provide much guidance, but that was the topic. We received a briefing on the Snapper Grouper Visioning Project; discussed upcoming council actions in the South Atlantic Region; and discussed format of future SEP meetings.

Our report is still in draft form, but we'll polish it up and submit it today. But on Snapper Grouper Regulatory Amendment 23, this contains actions to address issues in the commercial golden tilefish fishery. The council is exploring options to lengthen the longline season. We received a presentation from Kari MacLauchlin and we were asked several questions; asked to discuss the pros and cons of derby conditions for the golden tilefish longline fishery; and we were asked is a derby always a problem?

We discussed this a bit. In terms of pros, derby fishing can generate higher prices during short periods of time and maybe spur efficiency from the need to harvest quickly. In terms of cons, derby fishing can lower prices as buyers anticipate market gluts and could compromise product quality. Derbies would not be a problem if the fishing grounds are not overcrowded and if the market is not negatively affected. This isn't written down, but those are two big ifs.

We reviewed some options to extend the season. There are proposals to have a two-week season and then two-week closure and then have another two-week season. I think there is a one week on and one week off proposal. We suggested having the boats stagger fishing times, like using subsectors, by looking into natural breaks in fishing areas.

Turfs would be another option, breaking the quota into different regions where smaller groups of fishermen could better coordinate effort. We discussed this opening and closing fisheries in alternative weeks. In our experience we have seen varying success. This didn't make it into the report, but I think we would be interested in seeing this as a social experiment, to see if this will keep prices high.

DR. BARBIERI: John, if you don't mind, do you mind if committee members, as you speak about issues and if they have questions or comments; that they ask them right away?

DR. WHITEHEAD: Yes, that is fine. I'm staring at my computer; so if there is a question, let me know.

DR. BOREMAN: Just a question; did your panel discuss the safety issues related to derby fishing because that is a major issue in the northeast, and a problem with derby fishing when the weather gets bad and fishermen feel compelled to go out and fish because that is their only time they have. Sometimes they will risk going out in bad weather and it doesn't turn out well.

DR. WHITEHEAD: As a panel, this issue comes up every year. We were specifically asked not to talk about – we were told that individual fishing quotas were off the table. The Socio-Economic Panel has been a bit mono-maniacal about this issue, and that seems to be our solution to every problem. We're well aware of all the problems with derby fisheries; and as a group we have tended not to like these things.

The safety issue is one of those that maybe we were tired of talking about yesterday, especially when we were asked to try to fiddle around with the derby fishery to see if it could be improved. No, we didn't talk about safety, but, yes, safety is an issue, and we don't like derby fisheries. This is making me think we need to strengthen that part of the report.

DR. CROSSON: I guess we didn't bring that up yesterday, but Akbar Marvasti is one of the economists down in the Science Center; and Akbar has been working at looking at safety under

different regulatory regimes in the Gulf of Mexico. He has at least a Tech Memo, and it could get something under review at the Journal right now. It might be good to contact him; and at least that might be something the council could look at about safety records with different regimes.

DR. WHITEHEAD: In terms of the System Management Plan, a framework is in development for eight South Atlantic Fishery Management Council Snapper Grouper Amendment 14 MPAs. We were asked to provide input on social and economic goals of MPAs and recommend measures of evaluation of social and economic goals for the System Management Plan.

In short, we recommended that literature reviews of the effectiveness of MPAs be conducted, looking at five issues that are in the written report. I will spare you the recitation of that. Those are the only two substantive issues I think I'll report to the SSC right now, and we'll talk about the black sea bass issues later today. That one took about half of the morning yesterday.

DR. BARBIERI: Yes, I can imagine very complex. Are there any other questions or comments for John Whitehead on the issues that he was able to present this morning? If not, thank you, John, for the report. We're going to be discussing some of those other issues as they come up on our agenda. That moves us to Agenda Item Number 10; Southeast Fisheries Science Center, the headboat data evaluation. Are we going to have a presentation on that, John? Amy, excellent.

DR. SCHUELLER: I'm giving this presentation. I will say I have not been directly involved with this; so there is a limitation to the questions that I can answer regarding this topic. This is a short presentation. It starts off with a little background. Specifically we're talking about the Southeast Regional Headboat Survey; SRHS, another acronym for everybody, administered by the NMFS Southeast Fisheries Science Center.

It has operated along the southeast coast of the U.S. South Atlantic since 1972 and in the Gulf of Mexico since 1985. The survey is the longest continuous time series of recreational fisheries data on the U.S. east coast. The data are used in stock assessments for a suite of reef fish that are reef-associated and pelagic species managed by the South Atlantic Fishery Management Council and the Gulf of Mexico Fishery Management Council.

These data involve self-reported catch and effort by headboat personnel. Basically all trips are required to be reported in a logbook. Catch, effort and biological data are also collected by port agents through the Southeast Regional Headboat Survey Program. This notes that is a subset of the total trips that are taken in a given year.

Some background; August 4th through the 8th of last year was the SEDAR 41 data workshop for red snapper and gray triggerfish. On August 27th, after the data workshop, a SEDAR data working paper was submitted, which asserted the following; that the Southeast Region headboat data should not be used prior to 1992 because of errors in self-reported data resulting from either late reporting and recall bias or non-participant personnel filling out forms, so somebody else on board filling out forms, not necessarily the captain; and then regulatory changes over time.

SEDAR put a hold on the stock assessments that were for red snapper and gray triggerfish to allow time for a response of this issue through some data analyses. The approach has two tiers. The first is a programmatic tier; assessment of the headboat protocols and policies relevant to

data quality control and the ability to detect misreported data. That is an ongoing thing. That is basically how is the program working, what are their protocols, how do they deal with the data, and what kind of QA/QC do they do?

Then an analytic approach; there are two ways to look at this; so catch record, there is a logbook data and then also the biological sample data. The logbook analysis; they are looking for patterns and they are using outlier detection methods; so looking for those logbooks where there are some odd things going on in them.

The basic assumption is that the central tendency of the data is unbiased, but that there are potentially these outliers out there that we should be looking at and flagging. For the biological sample comparison, comparing dockside samples to the catch records; so, for instance, does a port agent have a sample for a species that is not on a catch record for that given boat for that day?

Progress; the programmatic section of this is nearly complete and the write-up is ongoing as we speak. Fr the statistical analysis portion; that is also ongoing and they are just starting the write-up now. Next steps; that was just for the analysis of the South Atlantic data. We still need to analyze the Gulf of Mexico data, but they will be using the same methods that were developed for the Atlantic. They have to finish writing the report.

It needs to go through an internal review, and there needs to be a meeting with General Counsel over confidentiality issues. As you guys I assume know, the data are confidential. What can be reported in the document needs to go through the lawyers to make sure that it is something that can be put out to the public. Then based on that General Counsel meeting; they are going to generate a non-confidential version of the report.

Final products; complete internal confidential version of the report will be available for internal folks. A public version of the report will be put out, and then there will be a SEDAR 41 working paper. Then recommendations for future use of the headboat data will be included within all that. I'll take questions, if I can answer them. Just keep in mind I haven't been involved in this.

DR. REICHERT: Just a point of clarification, the confidentiality issue; that is through both for the South Atlantic and the Gulf of Mexico analysis?

DR. SCHUELLER: That is true, yes.

DR. GRIMES: What was the rationale for choosing 1992 as the date before which all the data were biased by whoever wrote the report?

DR. SCHUELLER: That is a good question for whoever wrote the report; although my inclination is 1992 is the year in which a lot of regulations went in. I can pontificate on all kinds of reasons I think 1992, but I am not really the person to ask that question.

DR. BARBIERI: Amy, who is leading this effort in terms of in preparation of this analysis and production of the report?

DR. SCHUELLER: It is all happening within Beaufort, so the headboat survey is run out of the Beaufort Lab. There is the Headboat Program that is under the Fisheries Ecosystem Branch. The supervisor for that is Todd Kellison; and then Ken Brennan is the head of the Headboat Program; and then also on our side Erik Williams is the supervisor for the stock assessment group.

The stock assessment group has also been involved in it. Basically everybody in the assessment group except me, because I am the menhaden person. All the stock assessment folks, all the headboat folks; it is basically most of the folks at Beaufort that are not doing like SEFIS or something like that.

DR. BOREMAN: It must be public knowledge, but who are the authors of this working group paper that identified – is it the Center people or was it state people?

DR. SCHUELLER: Do you know, Julia; do you want to say?

MS. BYRD: It was Peter Barile, who is in the corner right there, David Nelson, and Jimmy Hull; and so fishermen, and then Peter is the scientist that works closely with the industry. I can send that working paper to John, and he can send it out to you if you are interested. It is available on the SEDAR website as well.

DR. BARBIERI: I don't know if it would be helpful – Peter, I don't mean to throw you on this last minute, but if there are any questions, since Peter is here, that folks might have regarding – I mean, I saw the working paper when it first came out; but I don't know if everybody has had a chance.

This was specifically related in that case to SEDAR 41, so maybe folks who were not following up on SEDAR 41 may not have had a chance to read the working paper. Something that we should have thought about is to give everybody a copy of that paper so you familiarize yourself with some of these that are discussed there.

DR. BUCKEL: Have the fishermen been working with the analysts on this? I guess I'm thinking about this assumption that seems critical about the central tendency of the data. It seems like you would want to pick out the reports that you have faith in; and the ones that were identified by the fishermen as problematic, you could throw those out on the front end. I'm not sure; it seems like the approach may not match the concern that was brought up in the working paper, unless I'm missing something. I haven't seen the working papers, though.

DR. SCHUELLER: As far as the fishermen working with the folks doing the analyses, I don't know if that is happening. I don't think it is. I think the statement about the data are mean on biases; that is, if you have some folks reporting and they are reporting a little below what they're really taking and some are reporting above, on average that will equal out, right, so that is not bias. That is the assumption; but it is basically a big outlier detection program. I'm not sure that it is exactly smart to pick on certain people's records. Then the confidentiality issues play into that, too.

DR. BUCKEL: Yes, I got the one thing that would be helpful to get from the – and maybe it is in the report, but to have that information from the fishermen. I would think everybody would

be going in one direction. That is my concern about the assumption; that you can use that central tendency and look at outliers. That is where getting – you may not have to deal with the confidentiality, just knowing the direction of the bias and having the fishermen help out in that arena. What I am worried about is this is all going to be done, and then the concern that was brought up in the working paper by Peter is still going to be a concern, so just making sure that concerns are addressed.

DR. SCHUELLER: What are your suggestions? Do you have a specific suggestion for how you would approach that?

DR. BUCKEL: Maybe it is in the working papers. I apologize for not knowing, but if there is information on the direction of the bias; so in your presentation you mentioned the fact that other people were reporting and not the captain; so if that was always – when you look at the port agent data, if it looks like it is always underreporting or if there is knowledge from folks that were in the fishery that it was always underreporting; that would be critical to not using the approach that is used here, so just getting a little bit more information from either port agents or folks that were involved in the fishery and filling out these reports would be helpful; so it is not thrown back that this isn't going to satisfy their concern.

DR. SCHUELLER: Yes; I think that is going to be included, and I think that there has been some discussion. There are folks that work at the lab that were port agents for the program historically that I think have made some comments about their experiences, but then there is also the comparison between the port-sampling biological data and the catch record data to try to address that. There is some component of that, yes.

DR. BARBIERI: Any other questions for Amy? Amy, do you have an estimate for when this report will be completed?

DR. SCHUELLER: Well, there needs to be something prepared for SEDAR 41's data workshop, so I would assume before then.

DR. BARBIERI: Any other questions for Amy? If not, I think we are ready to move on to our next item, Agenda Item Number 11; the Southeast Fisheries Science Center Assessment Program Review. There were two attachments as part of your briefing book, Attachment 13 and 14. A review of the Southeast Fisheries Science Center Assessment Program was conducted in July 2014.

The peer review report and the Center response is available and is provided to the committee for review and comment. Your action items for this discussion is a review and comment on the findings and a response. Do we have a presentation? Any comments or questions regarding the assessment program review and the response to peer review?

MR. CARMICHAEL: We're just providing this so you can see. I think most folks are aware the program peer review happened last summer. We got this information and you're interested in seeing what came out of it. We provided the documents, and I didn't know if – we had asked perhaps if someone from the Science Center wanted to come and brief you a bit more on their response; but unless Amy is prepared to do that, we don't have anyone to speak on their behalf. You are provided this as information.

Some of these things will affect SEDAR, so you will see it sort of rolling through over the next couple years. Certainly with the best practices data thing that we're working on is reflected in the program review and in the response, and more things like that will be coming.

DR. BOREMAN: There was a similar review done in all the centers. This is part of a five-year cycle. I guess this year they're doing Protected Species Programs. In the Northeast Region the SSCs were invited to participate. Did that happen in the Southeast Center; did the SSCs get a chance to get up and talk about issues or non-issues?

MR. CARMICHAEL: They were invited and Marcel was there, so I think maybe my take from talking to folks from the northeast and participating in the one at the southeast is that it was a little different approach. I think we will let Marcel give his thoughts on that.

DR. REICHERT: Anne Lange and myself attended that meeting, but that was kind of a last-minute arrangement. I personally didn't have a lot of time to go through most of the documents prior to the meeting. We were there and we provided some feedback from the South Atlantic perspective. There was a lot of perspective from the Gulf. Anne and I, as I said, participated in those discussions. We tried to bring some of the South Atlantic SSC's perspective to the meeting.

DR. GRIMES: I briefly read what was in one of the summaries of it. It talked about recommending harvest control rule changes, but it wasn't very specific about what they were talking about. Do you know really what that was, because it is going to simplify things?

MR. CARMICHAEL: Are you referring to in the center response referencing those?

DR. GRIMES: That's right; yes, that is really what I read, the recommendation, and then they had a little response to it, yes.

MR. CARMICHAEL: Yes; and I don't think anyone here really has much insight into anything that there was really intended with any of that or perhaps what all the next steps are. We pretty well know what is in the document, and that is about it.

DR. BARBIERI: To that point, I think it would be good to continue this discussion with the center and have somebody give us a summary presentation of the main findings. I agree with John Boreman that having more SSC engagement into this is just an opportunity to provide input and have the committee have a better understanding of some of the procedural and operational issues that the center actually has developed as part of their assessment program.

DR. BOREMAN: Along those lines; at our September SSC meeting in the Mid-Atlantic, we reserved half a day to have a round-table discussion with the lead assessment scientists, plural, from the center, lead assessment scientists who deal with Mid-Atlantic species. We walked through our ABC Control Rules with them, realized there was a lot of miscommunication going on.

They weren't interpreting our control rules the way the SSC was interpreting them. We still agreed on the four-level approach, everybody; the center scientists in general and the SSC. But we decided to stop numbering the levels, because it gave the wrong impression that a Level 1 is

better than a Level 2; and what that developed in the council and in the public was a perception that if you go from a Level 3 or 4 up to a higher level, the buffer between the ABC and the ACL is going to be reduced.

What we were really trying to say in those rules are the levels indicate how certain we are about the uncertainty. The higher the level, the more certain we are about the uncertainty. It is totally independent of the level of uncertainty; it is just how comfortable we are. Level 1 is a totally analytically driven process. The model itself just shoots out what we consider the best estimate of scientific uncertainty.

The other end of the scale, Level 4, we don't have an acceptable OFL, so we have to do ad hoc approaches like the ORCS approach or something like that, which means we're very uncertain about the level of uncertainty. At our last SSC meeting in March, we also spent half a day looking at the levels and if there is a better way to characterize them.

We came up with suggestions that went back to the council and the council accepted those suggestions. They are now being incorporated into the ABC Control Rules. Again, getting away from a numbering system, because the center people were figuring if they don't get at least a Level 2, they get downgraded on their performance plans or something, I don't know.

But getting away from the designation as numbers but more into a more descriptive approach for each bin that we put an assessment in, depending on how it characterizes the uncertainty and the estimates of the biological reference points. That was a major step forward, and we realized that we needed to start a more close communication with the center scientists to the point where right now there is an agreement; not in writing, but there is an agreement that when terms of reference are developed for the assessments, the SSC has input even before they go out for formal comment just to make sure that the SSC is going to get a product that we could use in determining what the ABCs are.

We are making progress with the center, but again it is a communication thing. As I said before, it would be nice to have somebody from the Stock Assessment Group in the center here as a representative to answer questions that Amy and others from the center can't answer because it is not in their ballpark. That would be very useful.

DR. BARBIERI: Yes, this is something that we have I think communicated through our report to the council and communicated with the center that this would be something that we would see as a move in the right direction in improving that communication with the center, and that we would like to have that accomplished.

Since we are not able to have a whole lot of varied input into this topic right now, let me ask the committee as we prepare our report, think a little bit more about this topic and give us some suggestions. You heard what John Boreman mentioned regarding the Mid-Atlantic. Perhaps we can make some suggestions or recommendations as part of our report to get something that the center can use as some guidance from the SSC on improving those communication lines between the two groups.

With that we're going to be moving to Agenda Item Number 12, which is the mutton snapper assessment review. Since this topic is really related to a product report from an assessment that

is conducted by Florida Fish and Wildlife Research Institute, I am going to pass the virtual gavel here to Marcel and ask him to lead discussion of this topic as well as tomorrow morning when we see –

DR. REICHERT: I'm not here tomorrow.

DR. BARBIERI: Yes; so we're going to have to come up with a different game plan tomorrow for that presentation on the hogfish projections.

DR. REICHERT: The actions on this agenda item are to review the assessment and consider whether it represents the best scientific information available; then identify and discuss assessment uncertainties; and then provide fishing level recommendations. At the last SSC meeting, Joe O'Hop presented a presentation and he went through the assessment as it was available at that point.

I believe we did not have the full report available prior to the SSC meeting, so Joe came back and will provide us a little bit of a refresher to the assessment. Then we will discuss and go to the actions. With that, Joe, thanks for being here and presenting a little update.

MR. O'HOP: This is I guess an update to the update. It was conducted by Bob Muller, Dustin Addis and myself. We think we've got a reasonable product for you. Just a little review, mutton snapper is primarily fished in the southeast region of the U.S. Gulf of Mexico waters; Caribbean down to South America.

Most of the landings are going to come from this area for the U.S., all the way up to North Carolina. As far as known, it is a single demographic stock in U.S. waters. There has been a recent genetic study by Carson and part of John Gold's group in 2011. The specimens were from just the Riley's Hump aggregations in the Florida Keys, and they were distinct genetically from specimens from Puerto Rico and the U.S. Virgin Islands.

They think there is low connectivity between the U.S. Continental stock and what is in the Caribbean. The range of specimens for U.S. Continental waters could be better; but as far as we know right now it is still a single stock. We're treating the South Atlantic and Gulf of Mexico as representing one stock.

For the assessment, we classified specimens a little differently from the council boundaries based on how the fishing was going on. This is for taking the length-and-age samples and trying to aggregate them up to represent the landings. We used this boundary between the Florida Keys and west to represent the Gulf of Mexico and from Miami-Dade County north as being representative of the South Atlantic.

A little different than the council boundaries, but this is again for representing the fishing mortalities in the different areas. There is little difference in discard mortality rates, release rates and things like that; so we thought it best to group them that way. Most of the landings are from the southeast region, which we're defining this way.

That is where the bulk of the landings are. There are sporadic landings in the Gulf of Mexico, north of there and even over to Texas, but very small amounts. We grouped them into one Gulf

of Mexico group; and then for the South Atlantic, most of the landings are in this area, but you do get some in northeast Florida, and in the last few years we've been seeing landings coming out of the bandit fishery from North Carolina.

They do represent some low level landings, but the bulk of the fishery is going to be southeast Florida. The SEDAR 15A Review Panel had a few suggestions for us on the last assessment. They wanted us to take a look at alternative data streams for discards and run different sensitivities. Those were good suggestions, but we had additional data available for this update assessment.

We took a look at the newer data to try and get a better handle on the sizes at discards and the rates of discards. We think we have a better handle on that then we did during 15A. They were concerned about index weights. Remember, this was back in 2006, so there was a lot of discussion about how different indices are weighted and whether to weight them equally or put more weight on indices that you had more confidence in.

That is still the same discussion today, so that hasn't changed. We are really focused on how the indices were being constructed and which ages they were applied to when we're configuring the assessment for the update. We're still weighting all the indices equally at this point. They wanted us to consider how the various indices were constructed for the fleets.

We used for the hook and line – well, actually for the recreational fleets, we were using a targeting – whether mutton snapper was targeted or caught as an indication of trying to put in those zero trips into that index. That gave us a pattern to work with. We've gone in the update to looking at more of a clustering current criterion. We looked at a suite of trips, found trips that were most likely to catch mutton snapper and used that as criteria for including some of those zero trips.

The Stephens and MacCall Method works similarly, but we went with the clustering technique. It gave us a few more trips to work with. In the 15A assessment, the review panel didn't like the inclusion of the year term as an interaction in the model. They wanted to have the year term as one of the class variables rather than an interaction. That was a good suggestion.

We had an update run with removing that interaction term available for the reviews. We were able to handle that part of the criticism for the 15A assessment. For the update, we asked Kevin to also not include the year and the interaction term, and that was handled. We didn't have a unified headboat index back in the 15A assessment. We split it into two series.

The break was right around the period where the size limit was imposed in 1995. The suggestion from the review panel was to make a single unified series and let selectivities govern how the model was viewing that particular index. We did make one unified index. However, with what you heard from SEDAR 41, the Data Workshop 40 Report, we ended up chucking the catch-per-unit effort index for the headboat series from '81 to '91. We ended up with one shortened headboat series for that index.

They wanted us to have a more consistent approach for separating ages in the visual survey. The previous index was used based on size and reclassified into ages. However, because the FWC Visual Survey was subsumed into the NMFS University of Miami RVC Survey, this was

unnecessary; but we also ended up looking at the length structure from the RVC, the estimates coming out of the RVC to try and estimate what the ages would be from that length structure.

We have a little different view on what the RVC surveys is representing this time. This is a rather big one; the ASAP software is based on ages, and your job as an analyst is to come up with an age composition to feed into the model. You can do this in several ways. You can use direct aging; you can use age/length keys of some sort.

But what the panel recommended was that we go to software that would estimate that age composition internally in the model; something like SS-3 does now. With the update, we were fairly limited in model choice, even though we took little liberties in some places; but basically we were still estimating age compositions outside the model.

In future models perhaps we can start incorporating that suggestion, and go to something like SS-3. What the concern was is that you may end up with losing year class strengths signals by going to some sort of fishery age/length key or stochastic aging. I think any model that is estimating from length is going to have the same issue.

I am not sure estimating internally your model is going to completely solve it, but it may be a little better approach. Also, they looked at our selectivity curves; and at that time ASAP didn't allow parameterization using logistic or double logistic curves. It was all age-specific values. We did some modifications at the review panel meeting to try and resemble a logistic type selectivity curve; but basically the new software allows us to put in parameters for that kind of selectivity shape.

We've responded to their suggestions that way. For the results, we had a range of values given for the different benchmarks for the fishing mortality rate and the relative spawning soft biomass rate versus what the council was using as the proxy for MSY back previously and they're still using now. Basically we had a bunch of runs that used age/length keys.

We had another set of runs in blue, which were the direct aging runs. This was how everything shook out. There were some differences into which indices were included or not, but basically the age/length keys tended to give us runs that were meeting the benchmarks or exceeding them – or not exceeding the F benchmarks but exceeding the spawning stock biomass benchmarks. The direct aging tended to give us runs that were estimating where we were below the benchmarks. It was more of how much faith do you put into models that has less data?

The direct again models had a lot fewer age samples to work with than we had for the age/length key runs, which were based on length. We felt that the age/length key runs better represented the current status of the stock; that's in a nutshell. In the update we're including new discard data on rates, lengths and how the fish looked after they were released, whether they floated away or were poached by dolphins or other fish or birds.

There is a revised maturity schedule, a new sex-ratio data that allowed us to look at the sex ratio in mutton snapper. We recalculated the growth curves and natural mortality. Then, of course, John Hoenig's Group and others came up with a new definition for natural mortality rates. We had a run in our results table at that new mortality rate. We had the new genetic data, but we're still dealing with one stock apparently.

We used the stochastic age/length key method for the aging. We still used a regular fishery age/length key method as well for comparison, and we also included direct aging runs. We had newer methods for constructing indices of abundance, and our age/length key allowed us to estimate the ages of discards, so we had some new features in this particular update.

Our selectivity was modeled with logistic and double logistic curves, and we linked them directly to the fleet. That was a little different than what ASAP1-A allowed us to do, so a little change in the model structure. We tried to deal with the fallout from the SEDAR 41 VW40 Report by chucking the information out of the headboat survey from ’81 to ’91.

You can’t just leave them out, you have to put some data in there, so we developed an average based on ’92 to ’94, just before the regulations changed to the 16-inch minimum size limit; as representing the landings for the headboat fleet from ’81 to ’91. It is about the only thing we could do at this point.

We adjusted the MRFSS/MRIP time series by coast, year, and mode. That is the Southeast Fisheries Science Center’s method, or was. I think they may now be incorporating another method based on the latest SEDAR recommendations, but this is using the Southeast Center’s previous recommendation for coming up with those landings’ time series.

Our base run included ’81 sensitivity runs, a ten-year retrospective, likely a profiling, MCMC, you know, the usual things. To take a look at growth curves, just to show you not much has changed; the growth curves were very, very similar. They change from an L affinity of 874 millimeters down to 861; so not a huge change. The K was a little changed.

The T-zero was virtually unchanged as well, and we had almost double the number of age samples to work with. We actually had more but we didn’t include fishery-dependent data that was below minimum size limits for the year in which they were landed. The Southeastern U.S. weight at age; again very little unchanged.

If you’re going to have a small change in length at age, you’re going to have a small change in weight at age. We used the same weight-at-length regression that we had used in SEDAR 15A. All that difference between weight at age is coming out of the growth curve; it is not coming out of the change in the weight-at-age relationship.

Our age-specific survival, Lorenzen type; again, very similar to what we used in 15A. Our maturity curves, we had more data to examine. SEDAR 15A is shown in red. The update assessment is in black. You see the length at age at 50 percent maturity has declined a little bit. We had a few more specimens in this area of the curve to work with.

It brought the age at maturity down a little bit or the length at maturity. The same with age at maturity, we had a few more ages here. We almost decreased this by almost three-quarters of a year. The age at maturity has declined the most. That is just from better data. It is not fishery related or anything else that we know of. It is just based on more data in the area that we needed more information from. The sources of discard data for mutton snapper –

DR. REICHERT: A quick question from Will.

DR. SMITH: I don't know if it is a question or a comment. It seems like the maturity schedule changed substantially, which it would be expected considering the additional data that was provided. I guess my comment was that it seemed like a bit of a stretch to call this an update. For one thing, the maturity schedule changed, so you would expect that the benchmarks would probably change substantially to correspond to that. Also, switching from a sex-aggregated model to a female-only model means that we can't even compare the results from this one to the results from the last one, in particular SSB.

MR. O'HOP: In the 15A, the SSB was the total and in the update it is a female biomass. The yield streams are still going to be the same. It is really just the calculation of SSB that is the issue. As far as maturity goes – you can see we had in 15A; this is our length at maturity. We were very thin in mature individuals in the area of interest, very few specimens.

We have a few more. It is not great, but it is a few more specimens where we can take a look at that proportion of age at maturity or length at maturity; and for age at maturity, again we have very few specimens that we're working with to compute those proportions mature. In the update we have quite a few more; still you could want more in that particular area of the curve. I think it is just that SEDAR 15A had so few data to work with; that we weren't very certain of it. It is better now. It is not great, but it is better.

DR. SMITH: I agree completely; the maturity schedule certainly would be improved. It sounded like the approach this time was better with the histological. I believe it was a histological approach that was used. Maybe I'm getting ahead of you, but do you also have a comparison of the benchmarks?

DR. REICHERT: Why don't we let Joe finish his presentation and then we'll have a discussion afterwards, because we may be jumping the gun a little bit so hold your thought, Will, and we'll come back to this later.

MR. O'HOP: Okay, discard data; we do have some information on discards coming out of the NMFS Coastal Fishery Logbook Program. It is not a complete sample; it is a 20 percent random sample, which is okay. Kevin has told me there has been some question of how good the time series is, especially recently some of the discard reporting rates have fallen off; but he's done his best to cull out vessel reports that seem to have diminishing reporting rates for discards.

He has done his best to pull out a good sample, and that is what we're working with. The NMFS Recreational History Statistic Survey and MRIP program, you get the self-reported B2 type of discards out of MRFSS or out of MRIP. Then there is some reporting of dead discards that come out of the B1 sample from MRFSS or MRIP.

If you looked at the historical time series for MRFSS and MRIP, very few of the mutton snapper released are released dead; so almost entirely the entire B1 sample is coming out of fish unavailable to the interviewer of which two or three records in my recollection were actually released dead. The majority of the B2s or the majority of the releases would be released alive.

That didn't give us any information on dead discards or release mortality from the recreational survey. From the Southeast Headboat Surveys, beginning in 2004 there has been reporting of discards in the logbooks. We've also had some at-sea sampling on headboats, which has

allowed us to not only look at the apparent disposition of fish as they're released; so the immediate disposition, whether they floated or were struggling at the surface or whether they went down immediately or whether a fish ate them or a dolphin or a bird.

You get that kind of thing in the discard observations; but we also looked at the information coming up on lengths. The samplers would get a fish from an angler, measure it, and then release it; and so that is where the length information is coming from off the headboats. What we saw from the immediate release mortality estimates was about 6 to 7 percent in the Florida Keys were released dead, or what we would consider to be released dead, and then in southeast Florida about 14 percent.

What this represents is that the depth at which mutton snapper are being caught in southeast Florida is right around – the average depth of fish is right around 90 to 100 feet. In the Keys it is right around 40 to 60 feet. You are seeing a depth difference in the depth of capture, which is translating into an apparent higher release mortality for discarded fish. To compare our commercial – yes.

DR. BUCKEL: Joe, I had a question on the release mortality. You have the immediate. Was there any – did you try to take into account any delayed mortality?

MR. O'HOP: No, we include that in the model as a point estimate of 15 percent, so it is not – and then we have sensitivities around that. We don't have any real measure of delayed mortality. Just to show you how the landing series compared between 15A and the update assessment; the red line is the SEDAR 15A assessment and the black line is our update.

You can see we followed pretty well – although there are some changes in the way we classified some of the vertical line trips between 15A and the update, but mostly as the data got better in terms of reporting of gear, we were able to classify the trips similarly as time went on. In the later part of this time series available, we're matching the 15A landings series pretty well.

For the released information, we have virtually no information on released fish except what was coming out of the discard logbooks. We ended up estimating a little higher discard rates or the CFLP program estimated a little higher discard rates than we had available in 15A. There is going to be some differences, but again these are very small.

In terms of the fishery, they are way less than 1 percent of the landings for the fishery, so they are very small estimates; but there are differences in what we're estimating between the update and the original 15A assessment. For the longline harvest, again we reclassified trips a little bit differently and the update versus the 15A assessment, but in the later part of the time series we're matching pretty closely.

As the reporting of gears got better, we are better able to match what we did in 15A versus what we're doing now. For the headboat harvest, we had originally constructed right straight from the headboat time series. In 15A we were using the landings reported out of the headboat series. In the update we were taking what was reported as landed, but we have some differences in the total amount of landings. We are taking the age structure – actually the length structure out of the headboat time series and reconstructing the landings. We are going to be differing a little bit in the total amounts landed from what comes out of the headboat survey.

We're basically a little higher in our headboat landings than what comes out of the survey. With the 1981 to 1991 adjustment, we were using the age composition from the dockside samples to compute what the – and the 1992 to 1994 landings average to come up with what would be the landings' time series that we would construct out of that length composition.

We're going to be a little different – and that is at this dark-dotted line – than what was either our reconstructed landings or from the SEDAR 15A values. We are differing a little bit there. Releases, we had a difficult time in 15A trying to estimate what releases were. We ended up differing a little more; but again the scale of the releases is so much less than the landings time series that they are really not a major factor in this assessment.

They are there but they are not a huge contributor to the assessment. For the MRFSS survey, we had similar problems in trying to figure out what was the landings' time series for MRIP and MRFSS. SEDAR 15A was using information out of the MRFSS survey in red. We had several methods available to try and estimate what the recreational landings were.

Again, we used that length composition from the MRFSS dockside measurements to figure out what the landings may be. This blue line shows our unadjusted landings, which are a little higher than what is reported in the MRFSS survey. We have the estimation procedure from the ad hoc working group, which is this dotted line here.

Then we had the Miami NMFS SEFSC Method, which is an adjustment by region, year and mode. We had several different methods of looking at recreational landings. We went ahead and configured the model with the SEFSC method, figuring that was probably the better adjustment method. What that does is take the MRIP time series and the MRFSS for-hire survey time series and tries to project backward of what the landings would be. They are going to be higher, especially in the earlier years, than what the MRFSS survey is currently showing.

With the estimated releases – and this would include our figure of 15 percent release mortality. This is the time series we're estimating for the delayed mortality from releases; again differing from what we had in 15A. Over time the large part of the time series is dominated by recreational landings. The bottom part is the commercial hook-and-line landings. Longline landings are in the red.

The cream-colored landings are the headboat adjusted landings and then MRFSS is on top. It is usually the majority of landings and the majority of discards for mutton snapper. Okay, for the model, we configured it in a similar fashion using 25 age groups. We had the length compositions available from the different fisheries by year and region. We had our Lorenzen Age-Specific Mortality. The fleets were configured similarly.

We dropped out one of the commercial fleets that we had in SEDAR 15A, so we reconfigured it to be the commercial hook-and-line and longline fisheries, headboat and recreational landings. In 15A we had a commercial "other" category, which was a combination of unknown trips, traps, spears, just a whole bunch of different types of trips that it turned out that we had very little information for to begin with.

We ended up combining those into the commercial hook-and-line fleet out of convenience. For the commercial and recreational landings, we had the NMFS annual landings and general

canvass. We had Florida trip tickets, we had the MRFSS/MRIP ratio adjusted by mode, the Southeast Fisheries Science Centers Headboat Survey with the ’81 to ’91 adjustment, and we had biological samples from the trip interview program from the FWC and from North Carolina DMF, discard lengths based on at-sea sampling.

This was for the period of 2005 to – this says 2014, but we actually used just to 2013 for the assessment – discard mortality rates from the NMFS logbooks and headboat at-sea sampling, and discard rates from the NMFS logbooks, the MRFSS B2 estimates and headboat at-sea sampling. For indices, we had the delta-type models, hurdle model based estimates.

These were from the CFLP, the MRSS and MRIP program and headboat survey. For fishery-independent surveys, we had the NMFS RVC, the Fishery-Independent Monitoring Haul Seine Survey for Age 1 fish – actually, it is an age zero index that we push ahead one year. These are haul seines that are done in the estuaries around the Indian River, and they’re catching primarily age zero fish.

What we’ve done then is just push those values ahead one year to represent Age 1. It is not perfect, but it suffices for the mode purposes. Then we had the Riley’s Hump data that Mike Burton supplied. These are average number of diver counts per site. It is a visual survey from the aggregations in Riley’s Hump. I don’t think Mike is continuing that survey at least for the time being, so 2011 is the last year for the data.

For steepness we were using a model estimated with the steepness parameter turned free, and we have sensitivities where we fixed steepness at various rates. Catchabilities were constant and we had starting values for selectivities based on what the age structure we think was from the length composition data.

We used a double-logistic selectivity for headboat and recreational, and we linked all these to the age compositions of the fleet. The indices themselves in reasonably similar shape to what was estimated for 15A, and the same with the longline fleet. We start to differ because we’re now using different criteria, clustering versus the targeting or caught criteria that we were using before.

15A had that divided time series where we had this part corresponding to selectivity for one portion of the curve and the second part of the time series representing the switch to a 16-inch size limit. Some similarities, but also some differences as well. With the MRFSS/MRIP index; again, some similarities in shape but generally not as flashy as the former index.

For the Age 1 index, we had some differences in the way the Age 1 index was developed before. In 15A, the age zero was defined as the standard length below a certain size, 80 millimeters in standard length. The age ones were greater than 80 millimeters. For the update we washed the length information through an age/length key, and we found that most of the fish – in fact, almost 90 percent of the fish were really age zeros. That index was really an age zero index. There are some differences in the types of models.

This was a zero-inflated binomial model, and we used a hurdle model for the update assessment; so some differences in modeling technique and differences in the way we classified fish as being either age zero or age one. That accounts for those differences. For the NMFS RVC index, it

has gone through some changes in the way they estimate some of the abundances at site. They say they are better accounting for differences between sites; so there is going to be some differences in the way the indexes and proportional abundances are calculated.

In 15A we got this from the NMFS RVC; and for the update we had this time series available. Some differences there, primarily the methodology has evolved for that particular survey. The Riley's Hump Index, we have some earlier data which Mike didn't provide us. I'm not sure why, but we had different data coming in for the Riley's Hump Index; but that is the particular shape that we got out of it. For ages, as I explained this was an Age 1 Index for the RVC. Primarily they were getting Ages 1 to 7 if you were to go by the lengths they observed.

For Riley's Hump, the feeling is that it probably applies to Ages 5 to 15 most of all. We don't really have any age information or length information to work with from the Riley's observations. For the fleet indices, putting them all together, the model would be seeing this group of indices and these values for doing its optimization.

The commercial indices are primarily fishing on older animals, so they tend to get a little different – it is a different look at portions of the population. The recreational indices that are in the red are looking at more of the younger individuals. If you take a look at that, they seem to be out of sync, and they are, and I think it is because of the way the individuals at each of the fleets are fishing on.

For the fishery-independent indices; again these are all applying to different parts of the population. The FIM Age 1 is looking at the fish in the estuary, and, of course, we push them ahead one year. The NMFS RVC is looking at still young fish, but probably 1 to 7, maybe a little older. They are probably mid-range ages, more like the recreational fleets; and the Riley's Hump is in the older animals, 5 to 15, we think. That is again looking at a different part of the population structure.

For selectivities, here are the selectivities that we gave the model; headboat and MRFSS, this double-logistic shape, very similar selectivities for similar-aged fish. For the commercial hook-and-line and longline fisheries, if you look at their age compositions or length compositions, you see a dome-shape as well, but what we're saying basically is they are fishing in areas that they can catch any age fish.

That is basically what we're trying to show here is that the longlines have all these ages available to them, and you may have differences that create a dome-shape afterwards, which may be from natural mortality, fishing mortality and the like; but basically the older fish are available for the longline and hook-and-line fisheries.

For the RVC, we give it also a double-logistic selectivity, and the model has estimated a little broader range of ages captured by that survey. The model estimated overall selectivity comes out dome-shaped as well; but because of the dominance of the recreational fisheries, they tend to peak out around Ages 3 to 4 and decline thereafter.

The estimates for the average F and this is at Age 3; there are some years Age 3 becomes the peak in selectivity, and other years it is Age 4, so depending on which group of years or a single year that you use it is going to be either Age 3 or Age 4 that is fully selected. For SEDAR 15A

the average F came out looking like that. For the update assessment, fairly similar shape, some differences in this part of the curve, and then finally ending up here.

If we look at the different methods for configuring the model, whether our base run was the stochastic age/length key, or a fishery age/length key, or direct aging, the patterns of fishing mortality were somewhat similar except for the direct aging, especially in this latter portion of the curve. There are some differences there that we're still contemplating what it means.

Retrospectives; we didn't see much of a retrospective pattern from the fisheries; or the model retrospective was very small. We didn't have much of a worry in terms of estimating that last year. There are some differences in the last year that is generating some retrospective pattern, but it is small. We didn't have a whole lot to worry about.

For the phase plot, this is the result of MCMC runs. The model estimate exceeded the SSB ratio and it was under the Fmsy ratio; and the Fmsy is the 30 percent SPR proxy that is being used. Everything looks good there. There was a small probability of being below your MSST value, but it was not great.

It looks like the stock status seems to be in a good area. Looking at putting all the runs – and this isn't showing all the runs, but is showing runs that were coming out of the direct aging versus stochastic age length/key versus fishery age/length key and dropping indexes or including indexes. Basically most of the runs are coming out in the best area to be in.

There are a few that are coming out below it. The direct aging, which is this point here; this was showing that the stock was in the overfished condition. The age/length keys primarily were giving us no problems with overfishing or being overfished. That is basically the upshot of the assessment.

It looks like looking at process errors and all that; that we've got the stock in a reasonable area to be in. As far as uncertainty and risk, they seem to be fairly well below the benchmark reference points. The projections from the base run are looking like this, where we start at hold catch constant from 2014 and '15 and then start to allow the models to project from 2016 forward at F equals zero the stock increases quite a bit.

At our current F, which is a geometric mean of the last three years, it is going to increase slowly. At F 30 percent the total biomass is projected to decline; and at F 40 it is projected to increase slightly. That is not looking bad right now. Spawning biomass, the same way; directed landings under no fishing, of course, it would go to zero.

There would be some release mortality in there but basically it is near zero. At the projected F current, the directed landings would increase as well as for F 30 percent and F 40 percent. Discards would have a similar pattern. For the P-star runs; are you ready to discuss P-star? Do you want to take questions about the assessment first?

DR. REICHERT: Yes; let's take some questions about the assessment and we will discuss the P-star in a little bit. I would like to open the floor for any questions or comments that the SSC may have.

DR. CADRIN: Going through this, I guess my approach is to focus on any changes. Since this is an update and there was considerable peer review at 15A SEDAR, it is really focusing at this point on changes and how we should consider any changes in catch advice; so changes to the data, changes to the model fit or changes to stock status.

You outlined a lot of data changes that seem logical, and they seem like improvements, and they seem like they are responses to the recommendations in SEDAR 15. Ironically, they produce a considerably worse fit in the model. If you look at the residuals, there are new problems in the residuals.

Commercial hook and line has all positive residuals from 2007 onward, so that was just for the discard estimates, which is odd. Usually ASAP fits the catch pretty well, but the discard residuals are both substantial and have a pattern. Commercial hook-and-line CPUE, all positive since 2006; longline CPUE, all positive since 2004, except for one of them; MRIP didn't fit the 15A well either; but those are all new lack-of-fit problems that didn't exist in the 15A.

It does seem like you've improved the data, but counterintuitively those have produced problems in the model. Even worse than those time series fits are the age compositions. The 1980's age compositions now don't fit at all. There were some really bad model fits that looked much better in 15A.

Even though there have been great improvements to the growth and the age/length keys, the model fit the 15A data much better than it fits now. There are some bad years in the nineties and 2000s, but almost all of the 1980s for hook and line and longline are much worse than they used to be. That is just something for us to consider.

When it comes to the trends, have there been changes in catchability from these fleets that might explain the patterns and residuals and was that explored would be one question. Then any insight as to why these data improvements, the model would fit these data improvements worse than it did before? I wonder if the group has considered these at all.

MR. O'HOP: First, yes, there are departures that are not desirable from the vertical hook-and-line and longline logbooks. There could be some changes in catchability. It is hard to really get at what those changes might have been. There doesn't appear to be any particular targeting on mutton snapper, so it is caught along with other fish that they are targeting.

We don't really have a good feeling on why there is such a lack of fit between the model and that particular index or those indexes in general. What we do however is we are weighting these indexes equally. Yu can use those stage two multipliers from Chris Francis' paper and get a little better fit to those indices, if they are weighted differently.

But we've stuck with the – we used that mainly as a sensitivity, those stage two multipliers; and if the advice from using the model compared with those stage two multipliers is different than what we had with equal weighting, then we would have to consider how we're treating those index data. Basically, the advice doesn't really change much with that reweighting.

We didn't put that into the report, but perhaps we should have. For the age compositions, I want to show you what we have done with the direct ages and the stochastic aging. The stochastic

aging applies also to the fishery age/length key, except that we're not using a growth curve; we're just using the observed lengths and observed ages for fishery age/length keys. But it is going to be very similar in the proportions computed for direct aging.

This is the commercial hook-and-line fleet. We have a gap in the reported – we basically have no lengths reported prior to 1992, so we have a gap in the information. Direct aging is working on this information here. I'm sorry; we have no age information available here. For the prior years we do have some length information.

It looks a little unusual in this area. There seems to be a gap in reported lengths, but that could be just the particular trips that were selected for measurement. But, anyway, that is what we had to work with in the stochastic curve. The gray area on this particular curve shows where there are no age measurements; so this is what we would estimate to be the age composition based on the lengths. You can take a look at direct aging.

Occasionally you will see some areas, which it looks like there are some year classes that are strong; and in the stochastic aging they may appear but they are going to be blurred out, because there is going to be a considerable number of ages in any given length, especially as they get older. Once they get over 7 to 10 years old, they can be any age.

Basically at a particular length, the length information gives you no real information about what their age is. Anyway, that is what we're dealing with the stochastic aging. You give the model age compositions, and then it is going to generate a predicted age composition out of it. This is the information that direct aging has.

This is the model-estimated age composition; and these are the residuals from that age composition. You get some structuring of ages even in direct aging, because it has got to produce a predicted age composition in that model. Now, the gray areas that I'm showing here do not figure into the final objective function, so they are not being used as fitting criteria; but they are being used internally in the model for computations.

For stochastic aging, the same way, you have what we calculate from the observed lengths, you have what the model generates as a predicted composition, and then you have the residuals. The residual plots, basically the smaller the dot the better off you are, because it is an observed minus predicted; the larger the bubble, the greater the difference.

If it is colored, the observed was greater than what the model predicted. If it is a dark circle, the model has predicted more than what was given as the observed. For the longline fleet, I have indicated that we have fewer age samples in the orange, so you can kind of get an idea of what the quality of the information is. If it is orange, fewer than 20 age samples were available to drive an age-composition matrix for the model. The gray, of course, there are no age samples.

For direct aging, this is what the model sees, this is what it predicts, and here are the residuals. For stochastic aging, pretty much the same thing, what the model sees – what we give it, what it predicts and here are the residuals, so that is the longline fleet. Headboat fleet same things, what the model is given, what it predicts and the residuals. For the MRFSS survey, we have even less information available; just the last 13 years available for direct aging. For stochastic aging we

have more lengths available; but again the model is not using this grayed-out area for its fitting process. I don't know if that helps any.

DR. CADRIN: Thanks for that. I am not sure that we have the answers. I think all we have to do is recognize the problem. You had an overlay of the two fishing mortalities from SEDAR 15A and the update and they showed differences in the late nineties, early 2000s, but the SSB scaling is much, much different. First I thought that was from the maturity change; but if I understand it, the revised maturity is younger.

MR. O'HOP: It is younger, but the SSB in 15A is based on total spawning stock biomass, so it is about twice – it is actually a little more than twice as much.

DR. CADRIN: Okay, so that is the reason for the doubling?

MR. O'HOP: Part of the reason, yes.

DR. BARBIERI: Joe, I was just wondering, Steve brought up the under fitting – I mean, if you look at the headboat index, the underfitting consistent and then a switch around '94 or '95 to an almost consistent pattern of overfitting. I don't know if this is one of those fleets where the information is kind of noisy and you expect already to not have a good estimation of catchability/ but it looks like – and if you think about yellowtail snapper, some of those changes in catchability that we used to see residual patterns that kind of showed that switch in over to underfitting. Are there any insights there?

MR. O'HOP: The model is going to be trying to fit as well as it can. The residuals actually are quite small in that area. We're not overly concerned. We would like to have a better residual pattern, but right now there doesn't seem to be a tremendous difference. It doesn't seem to be a real concern, but we would like to have a better fit, obviously.

DR. REICHERT: Are there any other questions or comments, concerns?

DR. JOHNSON: I had a question. I don't want to get too far in the weeds on it, but I was interested in how maturity at age was calculated. Are those just a logistic fit to the proportion data or is that an actual logistic regression? I think in some of these cases where you have very little data, you might get a better answer if you actually do zeros and ones rather than try and calculate the proportions.

For instance, with two data points, if you have 50 percent maturity, if you add one of those, it is either going to go to 33 or 66. In this particular case when you have very little data, I was just wondering how those indeed are calculated. Other things that come up are issues of N; because if you've got one data point that is based on 100 fish, that is still one data point equally valued to those that are in others. I was just wondering in general how those are calculated in particular, with respect to this one.

MR. O'HOP: Yes; we use the Quinn and Deriso type of parameterization where you have the length at 50 percent or the age at 50 percent being directly calculated, and we're using prop logistic. We're representing it on the figure as a proportion, but it is actually done on zeros and ones.

DR. ERRIGO: I just had a question about the steepness; was H estimated in the model?

MR. O'HOP: Yes, we have sensitivities where it was fixed, but we turned steepness loose. Now that is an interesting point, because while we did have a good model fit with steepness turned loose, it depended on the starting value what steepness value you would finally calculate out. We don't feel that there is a real definition for Fmsy right now; that it is probably better to stick with proxies.

If you start with a low steepness value, you will get a little higher steepness. If you start a little higher, you'll get a little higher steepness value calculated. It travels all the way up from 0.6 to 1. The model is not giving you a global fit for steepness; it is depending on the starting values.

DR. REICHERT: Are there any other questions, comments? The question before us is consider whether this represents the best available information.

DR. SCHUELLER: I have a question. This gets back to the residuals for the index fits. Selectivity was constant for those indices; is that correct? I guess my question is since they are based on fishery dependent; was there any changes throughout that time series with the fishery that would have indicated that there should be a selectivity time block or something? I'm just wondering if that is a component of the lack of fit for those indices.

MR. O'HOP: It very well could be, but we didn't have any indications that there was some shift in catchability. We could have turned catchability loose just to produce an estimate, but we kept it constant.

DR. SCHUELLER: I guess I'm wondering about selectivity changes. Maybe this is in the document and I didn't look at it well enough, but were there management changes made during that time period that should have been reflected in the selectivities that were assigned to those indices and fishing fleets?

MR. O'HOP: The ASAP model is working on total population; so unless there is a change in the way the gear is fishing, selectivity would be the same throughout the time series. What you would have is a difference in retention. For the commercial and longline fleets, they were already catching fish that were reasonably above that 16-inch total size limit, anyway.

We don't estimate a lot of discards for them. Of course, we don't have much information to go on, but we don't think they're discarding very much. We don't think selectivity has changed. We don't think the gear has changed. Perhaps they can locate areas a little better than they could before, but I don't know that there has really been a significant change in catchability based on those or selectivity; but that is a possibility.

DR. CADRIN: Considering the patterns in the CPUE indices that they are linked to the fleets in the catch compositions and there is lack of fit in the early catch compositions; I'm really concerned that selectivity is not being modeled optimally. There was a change to logistic, double logistic. It looks like periods of selectivity may resolve the problem. Were different periods of selectivity attempted?

MR. O'HOP: In 15A we did have different periods of selectivity. I think that was our misunderstanding of how ASAP worked; and ASAP is really designed to look at the total catch rather than – it is total catch and not just what was landed. We may have modeled 15A a little bit better had we been aware better of what it is meant to be modeling.

DR. CADRIN: But ironically 15A fit better. It didn't have these problems, which I guess if there was time – and I realize there isn't – for more explorations of alternative approaches to fitting selectivity could resolve these problems. As Marcel said, we just need to determine if this is an adequate basis for the catch advice. If we do, I think we need to consider this is a considerably more uncertain assessment than the 15A was. Despite the data improvements, the model diagnostics are worse.

DR. REICHERT: Anyone else? What is the pleasure of the group in terms of the best available scientific information? Can we agree that given the information and given the modeling that this is considered or can be considered the best scientific information available? Does anyone disagree?

DR. CADRIN: I think it's certainly better than projections from the 2007 terminal year, so, yes, I think of what we have available it is the best available.

DR. REICHERT: I do want to briefly go back to a point that Will brought up in terms of assessment versus standard, because I think it would be good to indicate in our report that there were quite a few changes relative to the original assessment. We can, when we are drafting the report, maybe get to list the most significant of those, so that can be taken into account in terms of the assessment. We may come back to some of you to help us with that draft. Unless there are any comments or questions, let's move to the providing fishing-level recommendations. So going to Table 2, not overfished and not overfishing.

DR. ERRIGO: I can go ahead and fill this table in. I can go through and have the assessment up side by side with the actual numbers, but I'll just go ahead and put not overfished and not overfishing for now, and then I'll fill in all the numbers. Maybe I'll even try to do it over lunch. But by the time I send around the report for everyone to look at, they'll be there.

DR. REICHERT: Okay, thank you. I think what we should do is run this through the ABC Control Rule. This is a Level 1 stock, with an assessed stock, so Tier 1 is assessment information. It is either a 1 or a 2 – correct me if I'm wrong – since we may have a proxy for reference point in terms of the steepness.

John will pull up the Control Rule. As a reminder, Number 1 is quantitative assessment, provides estimates of exploration and biomass includes MSY-derived benchmark; and Number 2 is reliable measures of exploitation or biomass, no MSY benchmarks, proxy reference points. This is the discussion we had in previous SSC meetings in terms of the proxies used. Would anyone like to comment on a suggestion of Tier 1, assessment information?

DR. CADRIN: I agree with Mike's suggestion of 2.

DR. ERRIGO: I specifically asked about it.

DR. REICHERT: I agree with that, too. I was just wondering if anyone had any comments. I see no hands or comments, so Tier 1 is Number 2. Tier 2, uncertainty characterization; we talked a little bit about that. We have either, I would say a medium high – I'm not sure we would want to go with a low uncertainty characterization, but I open the floor for comments or questions.

DR. CADRIN: I would lean more toward medium because of the model diagnostics; that even though uncertainty analyses are being done, they assume random residuals and these are far from randomly distributed.

DR. REICHERT: Thank you and I would agree with that. Is anyone disagreeing with that assessment? Then Tier 2 will be Number 2. Stock status is clear that it is Number 1, neither overfished nor overfishing. The PSA score, and I've pulled it up for mutton snapper is a high currently. It is on Page 4 of the MRAG Report.

DR. BOREMAN: Yes, just a small correction. You say Tier 2 will be Number 2; it will be Number 3.

DR. REICHERT: Sorry, did I misspeak? Okay, thanks. Tier 4 would be Number 3, 10 percent. That total score would be 17.5, off the top of my head. Any comments, questions?

MR. CARMICHAEL: On stock status you said Level 1 or Level 2, because the difference is not just neither overfished nor overfishing but is it close to the reference values? If this stock is close to the reference values, it would be more of a 2.

DR. REICHERT: Yes, you're right; I may have gone over that too quickly. I'm pulling up the graph in the report right now. Do we collectively feel that the stock is in close proximity to the reference points – to the benchmark values?

DR. BUCKEL: Yes, I do. Another thing to add here that I think comes into this benchmark is that there is this issue with the direct aging versus the stochastic aging, and so the stochastic aging could be producing this biomass that is not really there in those older fish. You don't see that in the direct aging, and the direct aging showed that we were on the other side of the biomass benchmark. I think that I agree that not only for what the base runs close but also this uncertainty in direct aging versus stochastic aging.

DR. REICHERT: I agree; the question is whether that is caught under 2 or whether we should also take that into account under Number 3, stock status.

DR. CADRIN: I think I will combine them; is that 24 percent of the distribution of stock sizes are below the minimum stock size threshold. When we consider that doesn't encompass the entire uncertainty, including the age/length keys, I think this can drop it to a 2. The point estimate is substantially above Bmsy, but the distribution extends such that if I'm reading your notes correctly, 24.3 percent of them are below.

DR. REICHERT: Yes, and I have to say I failed to look at that and that is why I went over this so quickly; but I do agree with those remarks. Collectively, do we feel that the stock status should be at 2, 2.5 percent? Does anyone disagree? No one disagrees; then Number 3 will be a

2. Joe mentioned the P-star analysis a while back. Joe, do you have any additional information that could help us with the ABC value?

MR. O'HOP: Yes, these are the P-star values at 0.5 and 0.4. They all show a slight increase for both of them. The P-star of 0.4 would correspond to the OFL of 0.4, obviously. That is right at the F 40 percent benchmark.

DR. REICHERT: We would get the P-star 30 percent values after the meeting, and I appreciate the work you've done on that. Are there any other comments, remarks? Then I think we have completed this agenda item.

DR. ERRIGO: Just to get it on the record and be clear; so for the OFL, are we going to have the P-star run at 0.5 – I mean the OFL at P-star at 50 percent and then the ABC at a P-star of 30 percent?

DR. REICHERT: Correct. Okay and with that; Luiz, I am going to give the hammer back to you.

MR. WAUGH: When you look at the MSY that comes out of the update, it is roughly 900,000 pounds. When you look at the MSY that we have in place now, and it was from 15A, it is about 1.5 million pounds. I know we'll get question on that; so if we could have some discussion about why we feel the stock is less productive now, it would be very helpful.

DR. REICHERT: Does anyone want to comment on that?

DR. SMITH: Does it get back to the change that biomass is now females only?

MR. O'HOP: Well, whether you use total or female, the yield streams will still be about the same; so the yield under SEDAR 15A was 1.5; and so that was probably an overestimate – well, I'm sure it was an overestimate of what that particular level was. We feel we have a better definition of spawning stock biomass now with an improved model.

SEDAR 15A, because of those age-specific selectivity values, we were projecting much more of a spawning stock biomass being in the water, which consequently raised the potential yield from that assessment up to a higher level. We're not with the new type of selectivity, not new type; but with the new selectivity that ASAP can model internally, we feel we are not estimating as much spawning stock biomass out in the water so that translates into a lower yield at MSY.

DR. REICHERT: To come back to Gregg's question; it is not a matter of currently there is a lower productivity, but formerly we may have estimated a higher, possibly too high productivity.

MR. O'HOP: Yes, that is correct.

DR. BARBIERI: I am just trying to kind of place some of these comments in a way that we can help clarify what Gregg was discussing. Basically what you're saying is that this update has improved our estimates of selectivity, right? The selectivity functions that are estimated now do not assume as much of a critical biomass abundance out there. The dome was a lot steeper in 15A than it is now, right?

MR. O'HOP: It was showing that basically there is more biomass that was not being fished than what we're estimating currently.

DR. BELCHER: Just a little bit for me clarification-wise; in the executive summary at the end of the report, you actually give an OFL limit and an ABC that is there that is a number that is different from these tables. I don't know if that is going to be misleading down the road, just for a suggestion, because I was trying to use that a little bit for guidance for myself, but obviously that number for ABC was 874,000 pounds, but yet that is not on that table.

MR. O'HOP: Yes, that is not what we're showing from P-star, but that was I guess from the – I'm trying to think of the right way to say it.

DR. BELCHER: It said it originated from the base run.

MR. O'HOP: It did.

DR. BELCHER: But I think in providing it, for me it was kind of that misleading advice of you are providing an OFL and an ABC based on the base run. It is kind of putting information out there that makes it sound like we've put those numbers down, but yet we're still deciding where we are on the flux.

I don't know if it is just kind of suggestion to at least to kind of eliminate that maybe from the executive summary, because I think we can get into a little bit of – if it is out there and been locked in at those values, how are we coming up with numbers that are different.

MR. O'HOP: Well, it is the difference between an equilibrium yield at F 30 percent versus 5 years or 7 years out. That is really the difference.

DR. BELCHER: Yes; and I understand that from our group; but I think if somebody gets this document by itself, they are seeing that there is an OFL and an ABC that has been set differently than what our advice has given. That is all I'm saying there.

MR. CARMICHAEL: It's a language thing. The assessment should just reference yield; the SSC sets OFL and ABC, not the assessment. That is just a future semantic; and if we can make an update, I think that is the point we're making. It does create confusion if the SSC comes out and says this is OFL and ABC. Someone can say, well, in the assessment it said this was OFL and ABC.

DR. REICHERT: That's a good point; and thanks for pointing that out.

DR. SCHUELLER: I think another problem is in the executive summary it says SPR of 40 percent and 30 percent. Is that what is reported in the rest of the documentation, correct? There might be a mismatch, because this SPR says 40 percent.

MR. O'HOP: What did they use to call that? Yes, the F at 30 percent was the overfishing level and F at 40 or SPR of 40 percent was the proxy for ACL, I guess. That is probably our fault in not explaining that.

DR. ERRIGO: I think in the old regulations SPR 30 percent was like the OFL – or like the TAC, and then the 40 percent was OY; but things have changed since 15A.

MR. O'HOP: MSY and OY, yes.

DR. ERRIGO: Right; that was MSY and OY; but lots have changed since 15A.

DR. REICHERT: Any closing questions or comments?

DR. BARBIERI: I just want to thank Julie Neer, who reminded me to bring up this comment to help you understand that this is still – as we make our recommendation here at South Atlantic SSC, there still needs to be reconciled with the Gulf SSC as well, which will in May receive the same presentation. We're going to have application of the Gulf SSC's ABC Control Rule and then somehow we're going to try to reconcile the two recommendations.

Now those two Southeast U.S. SSCs have somewhat agreed to defer to each other for some stocks that are predominant for one council or the other. We expect that the Gulf SSC would be more accepting of our recommendation here, but I just wanted to clarify the point that this still will need to be finalized before this recommendation for an actual ABC is produced.

DR. REICHERT: I have a procedural question. Does this mean that this will come back to our SSC in October? John, how does that work?

MR. CARMICHAEL: I'm not really sure. I don't know; does one of the councils have a lead or are they going to get together in June at the joint meeting and work this out? This always gets very complicated when we have this joint business and we haven't sort of said, well, let this SSC take it and run with it. Maybe Gregg can help us out as to what we need to do on timing.

DR. BARBIERI: I think it is still a little early to actually address that question; because like what happened for black grouper the last time, whenever we have one of those joint plans. If the Gulf SSC just accepts this recommendation and this evaluation is okay with them; in this case nothing would need to be reconciled. It is only if there is a difference in how the ABC Control Rule application is applied and how the yield stream for OFL and ABC are generated that we would have two different values that may or may not need to be brought before the full SSC again.

MR. CARMICHAEL: Actually it triggered my memory, because I thought we had talked about this with them. If you look in your overview, it says that the Gulf – since 82 percent of the mutton is allocated to the South Atlantic, the Gulf SSC consents to us taking the lead. They will review that at their next meeting in May; and then this will come to the councils – Gregg can tell us about the council time, if they're going to bring it up in June.

MR. WAUGH: Right now there is no plan to address the assessment part of mutton at the June joint meeting. We are talking about management regulations, because that is in a joint amendment we have with the Gulf Council. The thought was each council would implement these new values coming out of the assessment in their own amendment; but it is possible they could conclude to do that in the South Florida Amendment. It just seems it would move a lot more quickly if each council did it more quickly.

We have a very fast framework that we can use to implement these new values; but that is certainly something we'll discuss with them. But as long as their SSC is already sort of leaning towards letting us take the lead, then our council will discuss this in June and figure out whether we're going to use our fast framework or work something with the Gulf.

DR. REICHERT: Thank you for that overview, Joe; I appreciate the update. All right, let's have a ten minute break and we'll reconvene at 11:00.

MR. CARMICHAEL: All right, Lance, it is all yours.

DR. GARRISON: Thank you for the opportunity to come and speak with you sort of remotely anyway today. The objective of my talk really is to provide an overview of the types of studies that have been done on right whales of the Mid-Atlantic and the Southeast United States; to provide you guys with some information about the background on the data collection, how that has evolved over time, how that feeds the analyses that are leading into the assessments of relative risk that you have seen presented, and then also some similar examples of how we've tried to address or how we tend to evaluate relative risk.

When I speak, I probably will shorthand the southeast, essentially referring to the southeast calving grounds, so basically the primary region from Southern Georgia almost down to Cape Canaveral in Florida. That is the region that has been considered primary calving grounds for right whales, and is the region of the prior designated critical habitat.

But we're also concerned about the regions further north and we in the southeast tend to refer to the Mid-Atlantic more or less as Chesapeake Bay down through Georgia. That is probably the best way I'll shorthand it. Obviously, the true Mid-Atlantic further north is also an area or interest for us and an area where we have a lot less information about right whale distribution.

The things I'll cover, I'll provide a couple of very brief overview slides about the population status and trends in the North Atlantic right whale. This is basically a very short summary of the information that is in the stock assessment report for the species, so you can get a sense of what kind of assessment the data was viewing and what the status of the species is.

I'll talk a bit about residency and demographics and movement patterns within the southeast, really focusing on the degree of movement in and out of the core calving habitat. I'll talk about spatial distribution and how we go about taking the data that we have available and incorporating those into habitat models similar to those that Nick presented as part of his risk analysis; and then talk a little bit about our big Mid-Atlantic area, which is really a place that we're moving towards collecting more data on and trying to find some information about right whale migration patterns or movement patterns in that area.

To look at trends, so this is the basic information in the stock assessment report. Those who aren't as familiar with marine mammal stock assessments; we use a metric called PBR, which is Potential Biological Removal. The critical metric in that calculation is the minimum population size or MPS.

It really focuses on establishing what is the minimum number of animals that you can be very confident are alive in any given year. The right whale population, we have really excellent data

sets with which to estimate that value, because there is very intensive and long-term photo identification database, where we can identify – we, I say in the royal we sense of the right whale community that collects the data and the New England Aquarium that actually does the matching and creates the database that matches identifications or observations of individual animals across multiple years.

In any given year, because of the very high level of survey effort in both the northeast and the southeast and within specific areas where right whales tend to aggregate and feed, we have a very high overall sighting rate on the order of 90 percent or so of any given individual – the individuals alive are seen in any given year.

When you combine that with the historical information, you can come up with a very strong metric of the minimum population size and that is what is shown here. The estimate is at least 455 individuals are alive in 2010. There is a 2.8 percent estimated mean annual growth over that time frame.

This really reflects the status of the stock. It is still a relatively small population size. We're seeing growth over a long period of time; however, it is relatively slowly. Again, calf mortality may be as high as 3 per year; and again one of the real challenges that we do have is actually quantifying mortality.

We're basing mortality and serious injury estimates based on observed animals out in the field, not observer programs or something we are able to extrapolate or account for the proportion of dead animals that are not observed. Mortality rates are all underestimates, basically straight counts, so still relatively high mortality given the number of calves that are produced in any given year.

The population still contains a smaller proportion of juveniles than may be expected. In most cases we're able to compare the North Atlantic right whale population to that observed in the southern right Whale population that has generally a lesser level of anthropogenic impact with much more robust growth, so we're often comparing our population to the reputably healthy population in the southern hemisphere.

Likewise the growth rate is very slow compared to other large whale populations. The population, while it has certainly been increasing over the last couple of decades, it is still very small; under 500 animals. It is frequently exposed to anthropogenic threats, and we're primarily concerned with big entanglement in fisheries' gear, as we've stressed extensively here, and vessel strikes.

As the animals move up and down and hang around the nearshore coastal waters, they also happen to hang around in some of the heavy shipping areas. There are other anthropogenic stressors that we're concerned about in the long-term future like exposure to chronic noise. Given that these animals rely on sound for communication, there is considerable level of concern about the degree of noise in the ocean habitat and what affect that might be having on the production of the population.

It is listed as endangered under the ESA and depleted under the Marine Mammal Protection Act. With the potential biological removal of that metric I mentioned earlier of less than one; so if

you think about it as an allowable take, which is not exactly the way to think about it, but one a year is the maximum number of animals that are able to be taken from the population due to human impact and still allows the population to grow to achieve a sustainable population size.

We are at a very low level of mortality that is acceptable to maintain the productivity of this population. To look at the seasonal movement, the right whale spends the majority of the summer, spring and fall up in feeding areas in the northeastern part of the United States and Canada and also apparently occupies habitats as far south as New Jersey fairly regularly, even during the summer months.

Then during the fall there is a migratory movement south, particularly as pregnant females move south to the southeast U.S. to calve. However, this is not quite – I like this graph or this graphic put together by the North Atlantic Right Whales Consortium, because it doesn't display this migratory movement as one big bolus of animals that all move down in November; and then they all hang around for a few months in the southeast and then they all move back up to the northeast.

Really, as we've collected more and more information about the movements of these animals, that doesn't appear to be the case. I'll show you some data relative to that. Certainly, the pregnant females make a move south early, and they seem to spend a lot of time in the southeast; but other components of the population also are moving more rapidly back and forth throughout the winter months between the northeast and the southeast.

We can't think of the Mid-Atlantic or the Chesapeake Bay/North Carolina/South Carolina area as the place that have right whales only for a few weeks of any given year; but rather throughout the cooler months there are animals in those areas. We have in recent years seen very large numbers of animals in the southeast, as many as 243 individuals going across all demographic age classes, so not just restricted to just the few females that come down but rather everybody, including juveniles and some adult males.

As I said earlier, the animals occur throughout the season as far north as the Carolinas, certainly are moving back and forth. I'll show you some more recent data that suggests that as well. The primary tool that we use to look at right whale distribution and movement to the southeast is a set of aerial surveys that have been conducted intermittently since 1992; actually annually since 1992 with a varying degree of survey coverage and survey design.

In the early part of the surveys, it really focused very strongly on the region right around Jacksonville and a bit north and south of there; so in what was really considered the primary habitat. Within the critical habitat, external agencies formally define critical habitat external agency-funded daily survey efforts in that region, so there is very high-intensity survey effort in that core area.

Over time the survey design evolved to the more uniformly designed survey and included for five years this effort off of the South Carolina coast. These surveys are flown basically every good weather day. The spacing of the lines is such that we're expecting to almost have an extension of the water. However, the detection probabilities are certainly not fixed. The estimates are on the order of 25 percent of animals are detected on any given survey.

You are still having to account for detection probabilities and the distribution of survey effort when you make spatial distribution. Further north in North Carolina there have not been as many surveys. There were sort of isolated bouts of annual surveys that are the subject of the data analysis that Victor presented, but nowhere near the level of intensity that is observed in the Florida/ Georgia/ South Carolina areas.

In more recent times, the last couple of years, because of some reductions in resource availability, aircraft availability and also to really optimize the surveys for what they're designed for; there has been a recent review of the survey design and an evaluation of the objectives. The surveys were put in place really to mitigate ship strikes, basically provide information to mariners so that they would avoid whales.

However, with the implementation of the recommended routing and ship-strike rule, the intent then was to shift focus of the surveys to really look at collection of demographic data and really focus on documenting the presence of as many unique individual animals in the Southeast U.S., documented calving rate, and document entanglements and other human interactions.

We've moved towards a more adaptive design and certainly less survey effort further north outside of the primary area; and this image on the right just shows you the current designs underlined with the habitat model that suggests the density of animals and where we expect to survey.

To get back to the point about demographics, the image up in the corner is just to show you the types of features that are used to identify individual whales. The big white blob on the front of the animal is the callosity and the unique shape and structure of that callosity is used to identify the individual.

This particular whale has a pretty remarkable scar; and that also again will then permanently mark that out for the future, so just to give you the sense of how we go about identifying individuals and tracking them over time. These data show this demographic variability of the proportion of animals within the Southeast U.S. by age class. You can see that we do, of course, get a high percentage of adults; and most of those are calving females.

We also have young of the year, juveniles, and animals of unknown age that move in and out of this habitat. It is not simply a relatively small vulnerable group, but rather the whole population in some years or the whole demographic range of the population is using the southeast calving area and moving through the Mid-Atlantic.

The other interesting part of that story is the residency times by these age classes. If you look at this graph, the way to interpret this, if you look at the blue bar is animals that were first observed – adults that were first observed in December. Early on in the season you're seeing these animals, and they are having these much longer residency times where they are staying in the southeast habitat for 60 days or longer.

However, we get animals late in the season coming in. Those are the yellow and red bars; animals that aren't seen until very late in the survey period, despite the number of survey days that are expended in that December and January period, and those animals tend to have much shorter durations.

They are really only staying within the habitat over the course of less than 10 days or so. Again, getting back to this point that it is not a single bolus of animals that enters is the southeast and then it goes back, but rather animals that are constantly moving in and out of the region. Likewise, we can see that in discovery curves – now these are the cumulative proportion of individual animals observed for each of six survey seasons.

You can see towards the end of the seasons we're discovering new animals in most of these seasons. Likewise, there is an inflection point for the most part in the middle of the survey season, so you'll have groups of animals coming in late in the survey period and the surge of individuals really late January and mid-February in most years.

Obviously, 2010 and '11 were a very different period of time, a very different year for the data. That is actually somewhat similar to what we've observed in the last few years where we've had fewer animals overall, fewer individuals from different demographic classes; but even despite that, we're still discovering new animals relatively late on in the survey season.

Again, there is quite a bit of variability in how this population moves around and factors that are driving the migration patterns is really an ongoing area research. The other important part to keep in mind is, as I mentioned, the level of survey effort and the distinction of survey effort, so that this right image shows the number of sightings overall, 2005 through 2008.

And just sort of eyeballing it, the very high concentration of sightings in Georgia and Florida is obvious and fewer numbers of sightings off North Carolina and those regions. The left side of the graph really shows the importance of accounting for survey effort where there is very high-intensity survey effort in the region around Georgia and Florida, much longer level of effort or intensity of effort in Georgia and South Carolina, and really very intermittent limited effort in North Carolina.

Really, the focus of much of our habitat modeling work is to account for the spatial variability survey effort so that we do an effective job of modeling spatial distribution. The mechanism for that is fairly straightforward. We take information on environmental variations, bathymetry, sea surface temperature; some of the models have looked at BINs and other spatial factor in looking at the explanatory variables.

We account for the distribution of survey effort and use those to generate species-habitat relationships. Most frequently these have been best for generalized additive models, which allow – well, these are modeling your generalized additive models that allow more complex relationships between species and habitat.

This middle sort of blob graph shows you the environmental window in which we have fairly strong limitation on the offshore distribution of animals based on both water depth and sea surface temperatures. Essentially as you get further away from shore, you get out of cooler waters and into deeper waters; and that is when the densities of right whales really drop off.

Likewise, there appears to be an inshore limitation, so not rubbed up right up against the shore except in the region south of Cape Canaveral and closer to Cape Canaveral where the bathymetry also comes up to the shoreline. Essentially these statistical models are used to describe the

species habitat relationships; and then those are used to generate predictive maps of animal density. The outcomes of these have been used to evaluate critical habitat.

The map on the left is a set of models that were done by Caroline Good from Duke University as part of her dissertation. The right slide shows data that were used as part of the critical habitat determination from similar habitat models that we generated here at the Southeast Fisheries Science Center in concert with our partners at FWRI.

You can really see, especially from Caroline's model, that the habitat for calving right whales really does extend up into South Carolina and perhaps as far as Cape Lookout or Cape Fear and then more intermittent use up further north as you get through North Carolina. That is fairly consistent across all of the different models that have been done, including as we've updated information and used more and more of the data that was collected in South Carolina.

The most recent modeling effort is that by McGowan, but these data also were used to help define the critical habitat; so by taking the information collected in the southeast or in the Georgia and Florida region and then projecting that out spatially, we can define regions that are suitable habitat for calving right whales during the winter months.

These were used to draw the proposed critical habitat boundary. Actually, I think it just completed public comment very recently; but as you can see that boundary does extend up as far north as Cape Fear. The other application of these tools – and this really gets to describing how we've conducted mitigation or risk assessment in right whale assessments. .

This is an example of an analysis that was done to look at evaluating recommended traffic lanes. What we did was take information about right whale distribution from those habitat models, so we have predicted right whale density, and overlaid upon these red and green and yellow lines, which are the potential tracks for vessels entering from the outside of the habitat, from which is the mandatory ship-reporting box, and going in and approaching the pilot buoys off of Jacksonville, Fernandina from Georgia.

By overlaying these tracks and basically summarizing the level of interceptions between a given track and the right whale density from the habitat model, we evaluated and established particular approaches to the port that would have the lowest overall risk. In general, these are the lines that are more or less the shortest connection point between the box and the pilot fleets.

But also it reflects the distribution of the animals particularly in the southeast corner where you might have animals in closer to shore and also limiting the number of transits or the length of transits across the area. This type of modeling can really focus on relative reduction of risk. Given the underlying known distribution of vessel traffic, how could we restructure the vessel traffic so that it would reduce risk to the maximum extent to right whales?

Those models were then taken and incorporated into a Bayesian Hierarchical Model that explicitly looked at both the right whale distribution and the distribution vessel traffic and used those and worked with the Coast Guard to establish recommended routing areas. These lines are the actual maps that are put on vessel traffic that are recommended lanes for vessels to use as they approach the pilot buoys to avoid right whales. Again, these are focused primarily on reduction in risk rather than direct quantification of absolute risk.

As I mentioned earlier and as you've seen the more recent habitat models by Gowan and Ortega-Ortiz extend survey data through 2012/2013 and provide an improved basis for evaluating right whale distribution as far north as South Carolina. These are then the basis of the risk analyses that we're using for this current work.

The other question that I mentioned is that in Mid-Atlantic, so roughly the region from New Jersey down through Cape Hatteras and down into South Carolina, there is relatively little information on the movements and habitat use of right whales between the calving grounds and the feeding grounds. Generally, if you think about it, every single right whale that makes it to the southeast needs to move through this region and past Cape Hatteras.

They are there in relatively low density and at particular times, and generally in bad weather, so it is rather difficult to survey them in the same levels we do in the southeast. Generally, we have much less information. We've recently conducted a data assimilation project to start compiling all the sightings for right whales in Mid-Atlantic waters.

There is expanding passive acoustic effort and we're also exploring these tag telemetry to look at right whale movements through the region. This is the example – this work was started in 2015. These tracks on the right side show the movements of two animals; one that was tagged near Cape Canaveral and one that was tagged further north.

Both are juveniles and both very quickly, after the tagging, made their way north and moved out of the primary calving area, moved in relatively nearshore waters along the South Carolina and North Carolina coasts; and then the one animal whose tag stayed on for a long time actually made its way up all the way through the Mid-Atlantic and back up into a feeding area south of Cape Cod.

Again, this tool, as we continue to develop the mechanisms, the method, and develop and try to improve attachment time; that will provide us even more information about the degree to which right whales are using Mid-Atlantic habitats. It brings us to where we are with this analysis. As we all know, we're discussing the potential expansion of the fishery in the regions that are occupied by right whales.

The work that has been done so far has really capitalized on the habitat model done by Gowan and Ortega-Ortiz to look at the distribution of animals and account for this variable distribution of survey efforts, especially in the region from South Carolina through Florida. As you know, they have done an additional analysis taking advantage of the fairly limited data that is available in North Carolina, so a different type of model, because there is just not that much information to look at distribution off of North Carolina.

Again, we're taking that very similar approach to what was done during the ship-strike analysis and other analyses to look at how different management scenarios represent different levels of risk to right whales based on a direct co-occurrence as predicted by habitat models. The application of spatial models, it better characterizes whale distribution instead of looking directly at sightings.

We are relating cetacean distribution to environmental variables and predicting occurrence based on those variables, and then using those to predict cetacean distribution within a study area that

has not been sampled. That is really probably the big take-home point from these data is that the underlying statistical tools that have been developed have shown a lot of consistency over time. They are extremely robust given the high intensity of survey data that we have available.

Where we are weakest is certainly in the North Carolina region, but that is a function of the level of survey efforts that has been expended there. But even within that area, there have been the model that Tim developed for this particular analysis is particularly affective as a tool for predicting the relative co-occurrence of whales in that spatial distribution of fishing effort. I believe that is my last slide. I'm happy to take questions.

DR. BARBIERI: Any specific questions here from the committee for Lance regarding this overview of the types of analysis and data collection for the right whales in the Southeast U.S.?

DR. REICHERT: I have a quick question related to the discovery curves. You mentioned that 2010/2011 data; I was just wondering – and you may have mentioned it – whether you have more recent data. I was just wondering whether that pattern was an anomaly or maybe a shift in some patterns since 2010.

DR. GARRISON: I don't want to go too far out on a limb and say it's an active shift in pattern, because I haven't really fully analyzed yet. I will say in the most recent years, the last couple of years fewer animals have been observed in the southeast overall, and there has been less representation of as many demographic classes.

What is underlying that change will be a most interesting thing to figure out, but that has truly been this year. Though this year was a bit confounded because the weather was consistently horrible throughout the survey region all winter long; I think there is some indication that at least these most recent years are not the same as the prior five to eight.

There is a more detailed analysis of the demographic patterns that are either in review or perhaps – it is in internal review I think, getting ready to get some – there has been some recent work to look more closely at these patterns.

DR. REICHERT: Another quick question I had was relative to calf mortality. Do you have an estimate of the number of calves that are produced each year or that is very difficult to estimate?

DR. GARRISON: Actually we have direct count, and that is one of the real strengths of the surveys, because everyone comes here to calve and because of the intensity of survey effort, we're getting very strong reliable calf counts each year. It varies, of course, widely. In the nineties there were years where there were less than 10 calves being born.

In more recent years we've had as many as 20 to 30. I should have off the top of my head the number from last year, but I want to say it was on the order of 16 or 17. I think that is about right. We do have good information about calves.

DR. ERRIGO: I just wanted to ask about the detection probability. It seems like you are assuming detection probability is uniform over space and time, but it doesn't seem like that would be the case. It seems like different years you would have different abilities to detect the whales given the overall weather conditions.

It also seems that given time of year or whether the whales are with calves or if they are individuals or if they are migrating versus in a particular area calving for some reason; that there be different probabilities of detecting them. It seems that just blanket probability detection wouldn't be reasonable for these animals.

Even over the course of a given season, if you have more migrating whales in the early part of the season and more that are hanging around calving in the middle of the calving season; the detection probability would seem to be different.

DR. GARRISON: Right, so there are a couple of different things in there. Yes, we do need to account for the effect of survey conditions basically on detection probabilities during any given surveys. In the models we do account for that and particularly in the Gowan model to define and deal with detection probabilities.

That is less of a critical factor only because we don't typically fly in bad conditions. We generally fly in conditions for a variety of reasons where you have reasonable probability of detecting the animals. But even within the models, there is the accounting for the sea conditions or the survey conditions that we can account for that component of the probability.

The other part is the behavioral part; and that is an interesting question. These whales are not ones that spend – even when hanging around or not doing anything are not spending long periods of time under water. They are not sort of diving down to great depths to feed, which certainly would be an issue if you were looking at sperm whales, even looking at right whales further north.

Mom/calf pairs of course, are staying at the very top part of the water column. Even when traveling, it seems like they are staying towards the surface for the most part. The one place where I think there are some detection questions that I think we could think a lot about is the flight. It sort of came to light this last season.

You have long periods of time where you may not be flying. Animals with short residency times may come in and leave before you have an opportunity to get back up and fly again. But that, of course, varies from year to year and place to place. I think to the extent possible the models do account for variation in sighting positions, to look at spatial distribution patterns.

I think for the most part where we've analyzed the data and looked at the data closely, accounting for survey effort to some extent also addresses that detectability question, and we really don't expect to see very strong differences in behavior, surface behavior, surface availability.

The other thing I should mention, too, is that we tend to have either a couple of individuals or one individual moving around. There are certainly larger surface active groups that are much more obvious from the air.

But again that is sort of a less common occurrence for the southeast and Mid-Atlantic or at least south portion of the Mid-Atlantic than in other areas. I am not overly worried about the detection spots causing huge biases in the spatial part, but it is obviously something that we try to be aware of and take account in the habitat model.

DR. ERRIGO: Just one follow-up to detection probabilities. You mentioned that you had a bar graph that showed the timing of when whales were seen and you showed that some adult whales were seen in March or in February. The assumption was that they weren't in the South Atlantic until that time;, but even given an overall detection probability of 25 percent, isn't it reasonable that they just weren't seen but were in the South Atlantic during that time?

DR. GARRISON: I think that is certainly possible. However, given the intensity of the surveys, in most years we're flying many, many, many surveys especially during December, January and the first half of February. I think it certainly is possible that we happened to miss all of those guys until January, but I think the fact that you saw it relatively consistently over those multiple years; that we're suggesting that it seems more likely to me that they arrived late.

Then really my focus was on the residence time, basically that sort of short duration in which they were in the habitat. We saw them in February and then they would leave 10 or 15 days later. I think that is fairly consistent. I don't think it is reasonable to think that they would have been there all the way from the beginning of the flight season and completely be missed during that period, but there is a possibility.

DR. SMITH: My question is related to what Mike had a few questions about detection probability. In the survey it sounded like it was a double-observer method; is that correct?

DR. GARRISON: No, these are not double-observer surveys. They're a single observer team in a small aircraft.

DR. SMITH: There was no replication of the observations of any sort?

DR. GARRISON: I'm not sure what you are referring to as replication. In two-team surveys, you are generally having like a forward survey team and then an aft survey team that are conducting essentially an in-plane marker/capture study. That is really a way you get at quantifying detection probability or at least estimating the probability that you are going to miss an animal as a function of whether it is available to both teams.

That kind of replication, if that is what you mean, is not done as part of these surveys. Basically the aircrafts don't really allow it. These are observations by two observers looking out of either side of the airplane. Generally, these are very experienced long-term observers who have had lots of experiences looking at right whales.

Functionally what they do is they fly over, they see an animal, then they go over top of it, circle it, take lots and lots of photographs to get these photo identification photographs and characterize both the distribution or movement and the number of animals in the area.

DR. SMITH: I suppose my concern here is that without that replication, detection probability and abundance become confounded.

DR. GARRISON: Well, yes, that is true, if you can't estimate detection probability, then you can't directly estimate abundance, which is why we don't estimate abundance, generally speaking. But we're talking about at least from a line transect analysis type approach, which has been done and there has been some work looking at detection probabilities and the sighting

function that you can get at – I don't know how far down in the weeds we want to get on distance sampling, but the data is collected so that you can do distance analysis and estimate the probability of detection conditional on the animal being available for observation. That work can be done.

Generally speaking, because of the number of surveys that we conduct and that really high intensity of the survey effort, if we really wanted to try and come up with an absolute estimate of abundance, we would probably do that through a marker/capture effort. I don't believe that has been done, but I know that they are looking at it closely. But generally speaking these surveys are not really designed necessarily as line-transect abundance surveys primarily for the purpose of estimating abundance; but the data certainly are there to do that.

DR. BARBIERI: Are there any other questions from the committee? We have Dr. Michelle Duval here, our council vice-chair and SSC liaison, and she has a question as well, Lance.

DR. DUVAL: I just had a question about the phase-out of the surveys off South Carolina and Georgia at the end of the 2013/2014 survey year, and I was just curious why those were being phased out. Is it because of some of these newer acoustic techniques that you are investigating?

DR. GARRISON: The primary reason they are phased out – so I don't go too far out on a limb – is funding. Basically, we lost funding to support those surveys. That is part of the reason why we wanted to take a look at the survey design and ensure that the survey design going forward still provides the same level of detection probability for identifying individuals that are using the southeast.

Passive acoustics has been a long research project both in the southeast and the northeast to see how they can augment our understanding of distribution. There is a whole suite of factors involved in detecting an animal acoustically from its behavior to the acoustic environment. I think in the long run there will be the capability to augment or perhaps replace those surveys with monitoring these passive acoustics; but at this point we're really still very reliant on the initial survey.

DR. BUCKEL: I really like the ship-strike risk reduction analysis that you presented, and I was just curious if there has been any type of similar analysis done with entanglement gear; so if you can trace back the entanglement gear to a certain fishery or a certain area; and then if there is a certain density of vertical lines or the sizes of vertical lines that you can say that is going to lead to a higher risk of entanglement, if anything has been done along those lines.

DR. GARRISON: Yes, there are considerable challenges in terms of pulling gear off of animals and identifying which fishery it actually came from. That is one real challenge. As far as looking at co-occurrence between end lines and vertical lines, there has been a pretty extensive data-compilation effort by the GARFO Region to get as much information about the spatial distribution, spatial and temporal distribution of end line, from all variety of gear, from pot gear through gillnets and others and overlay those with sightings-per-unit-effort data on right whales to look at potential areas of high risk. That has been a real focus of the Atlantic Large Whale Take Reduction Team over the last several years. Within that model, they have taken a fairly similar approach in the sense of identifying areas of overlap and using that as a metric of risk.

DR. BARBIERI: Any other questions from the committee for Lance? Lance, thank you so much. We are trying to decide on whether we have time to break for lunch. I don't know how long Jenny's presentation is.

MS. LEE: I would say it is longer than ten minutes; so if you do want to wait for lunch, whatever you want to do is fine with me.

DR. BARBIERI: That is great, Jenny, because it facilitates for us staying on schedule. It will be I think a more productive discussion if we reconvene right after lunch. Can we shoot for getting back here at 1:00?

The Scientific and Statistical Committee of the South Atlantic Fishery Management Council reconvened in the Crowne Plaza Hotel, North Charleston, South Carolina, Wednesday afternoon, April 29, 2015, at 1:00 o'clock p.m. and was called to order by Chairman Luiz Barbieri.

DR. BARBIERI: Let's continue the presentation and discussion of Agenda Item 13, the right whale monitoring and biological opinions. The second presentation, Jennifer Lee from Protected Resource is going to walk us through.

MS. LEE: I've been working on ESA issues for 15 years with most of that time focused on ESA Fishery Consultations. Here is an overview of what I am going to present to you today. You requested clarification and background information on the biological opinion process, including types of analyses considered in the role of the SSC.

My goal is to provide you with that information in the context of the snapper grouper fishery and Large Whale Section 7 Analyses. We'll start by reviewing the Section 7 requirements and the Snapper Grouper Section 7 consultation history related to endangered large whales. I'll review potential reinitiation triggers. I'll provide some basic information on biological opinions and their components.

Then we'll get into timelines, roles and responsibilities in the formal consultation process. I will provide a little information on some of the data and review standards, because I know that is of interest to you; and then end with just a few take-home messages. First, let me review the Section 7 requirements to make sure we are all clear in our obligations.

The first requirement is affirmative mandate to conserve – we are the government, we need to do good things. The National Marine Fisheries Service in this particular issue has two laws that we work under, the Magnuson-Stevens Act and Endangered Species Act. We are expected to use those authorities to further conserve the species.

The second requirement is that federal agencies must ensure their actions are not likely to jeopardize listed species or result in the destruction or adverse modification of the critical habitat. I think of it as at a minimum the government better make sure its actions are not making things worse off for listed species and their critical habitat. Note the use of the word ensure. A consultation biologist doesn't have to prove an action is jeopardy to have to ensure that an action is not jeopardy; so just a distinction I thought I would point out.

A federal agency consults with either NMFS or Fish and Wildlife Service, depending on the species potentially affected, on any prospective agency action if there is reason to believe that an endangered species or threatened species may be present in the area and affected potentially by that action.

This slide reviews the Snapper Grouper FMP consultation history, including the most recent biological opinion through some recent actions. The consultation documents our concerns regarding large whale interactions, why we have previously determined not likely to adversely affect endangered whales, and why we haven't reinitiated consultation on any snapper grouper FMP actions since the 2006 opinion.

The 2006 biological opinion evaluated the continued authorization of snapper grouper fishing in the U.S. South Atlantic Economic Zone as managed under a snapper grouper fishery management plan of the South Atlantic region, including all amendments through at that time Proposed Amendment 13C.

In the biological opinion, which, of course, does again cover all species that may be affected – we're just focusing in on here with respect to the whales – NMFS determined that both humpback and right whales were not likely to be adversely affected because of the lack of observer evidence suggesting the black sea bass pot gear was at fault in entanglements and also because of proposed revisions of the Atlantic Large Whale Take Reduction Plan.

One of the main reasons we didn't believe that the fishery was likely to adversely affect these species is because we thought the Atlantic Large Whale Take Reduction Plan, which is implemented to reduce injuries and deaths of large whales due to incidents of entanglement in fishing gear, would address out concerns.

I wanted to review with you our reinitiation criteria. Once we have a biological opinion, we continue to look and see if there is a need to reinitiate and conduct a new consultation biological opinion. Reinitiation of consultation is required if the amount of the extent of the incidental take statement is exceeded.

New information reveals effects not considered before in the biological opinion. The action is modified in a way that cause and effect are not considered in the biological opinion or a new species or critical habitat that may be affected by the action is listed. You can see reinitiation can be required for a number of different reasons. Again, we're focusing here on reinitiation and consideration for the large whale.

When we looked at Amendment 18 and whether or not any reinitiation criteria happened that we raised some concerns. Entanglements in trap gear similar to black sea bass pots continue to occur; I believe 17 since 2006. A number of large whale entanglements have occurred in the region since 2006; and the actual fishery involved couldn't be determined in a large majority of the entanglements.

That is important to note; because if you remember the 2000 biological opinion, we stated one of our reasons for determining to not like adversely affect was that we didn't have any observed or documented entanglements. However, we have come to realize that almost no gear is getting identified on these entanglements. In fact I believe of those 17 I mentioned, again none of them

were identified to gear type. To that last point is since gear cannot be identified in the large majority of large whale entanglements, we also can't rule out black sea bass gear as having entangled large whales.

Ultimately in our reinitiation analysis, despite the concerns I just reviewed, we determined that we did not need to reinitiate the 2006 opinion. The main reason was that we anticipated that the black sea bass fishing season was unlikely to overlap even temporarily with the right whale season. It is important to note 18A may have had some benefits to right whales, but that was not the purpose of that amendment; and regardless, those actions certainly were not why we didn't think we needed to reinitiate.

Our reinitiation analysis was based on models NMFS developed which indicated black sea bass was likely to reach its quota and close between late August and mid-September during the 2012/2013 fishing season and into late August during the 2013/2014 fishing season. We determined that we didn't need to reinitiate because of that.

In fact, we noted that if black sea bass pot fishing effort does extend into November of 2013/2013 or if the 2013/2014 projections indicated that fishing may occur in November or beyond, reinitiation of consultation would likely be required. Subsequent to the 18A consultation, we conducted another reinitiation analysis on Regulatory Amendment 19.

We determined reinitiation of the 2006 opinion again was not necessary, because the proposed annual prohibition on the use of black sea bass pots from November 1 through April 30th would prevent actions between black sea bass pot gear and ESA-listed right whales during large whale migrations and right whale calving season, meaning there will be no effect on the species.

Regulatory Amendment 19 was not anticipated to cause any new effects that were not considered in previous ESA Section 7 consultations. There was another reinitiation also for Regulatory Amendment 20; but little consideration, again no reinitiation or consultation because of the closure. What has changed is why are we talking about this is what are the consultation expectations with respect to Amendment 16 that is now involved.

Well, we have a lot of new information that reveals effects not considered – and Lance went over a lot of that information and that is why I requested he go first – on right whale distribution we recently learned with respect to migration, timing, and location data. We also had new information on entanglement and how we really can't identify the specific gear types that are involved.

The other reinitiation trigger would be the Proposed Amendment 16. Amendment 16 would result in a modification that potentially cause an effect not considered in the 2006 biological opinion. Amendment 16 proposed changes to or elimination of the fishery closure certainly would trigger consultation.

Getting into a little process; to initiate formal consultation, an action agency must submit a written request, including a description of the action and the potential effects on the ESA-listed species, along with a determination of effect for each species and its critical habitat at present. This means that the requested consultation can't get going until the council can sufficiently describe and therefore provide the proposed action to the action agency.

Consultation also can't begin until the consulting agency has received requested needed information. Biological opinions are issued within 135 days, unless extended, of a complete initiation package. The ESA specifies 90 days to conclude consultations, 45 days to provide the opinion. I should point out here that the opinion would be on the entire fishery and all affected species. We would not be just looking at right whales.

Consultation is a document of exchange of information about impacts with substantial procedural and timing requirements all spelled out in ESA statute, regulations and policies. A biological opinion is the end product of a formal consultation. It includes NMFS opinion as to whether a federal action is likely to jeopardize the continued existence of an ESA-listed species or result in the destruction or adverse modification of the species critical habitat; a summary of the information on which the opinion is based and a detailed discussion of the effects of the action on listed species or designated critical habitat.

ERS is outlined but the main components of a biological opinion – in all of our biological opinions we start by reviewing the consultation history. There has been a description of the proposed action, breaking down the components that we'll be analyzing for their effects on species.

We review the status of the species, the range-wide status; we're looking at in terms of how the populations are doing and what is affecting them. Environmental baseline; that is the past and present impacts of all federal, state, private actions and other human activities in the action area; so just kind of looking at what is going on in the vicinity and the anticipated impacts of all proposed scheduled projects that have already undergone formal or at least consultation for the impacts; so really looking at what else is happening.

The effects of the action; this is where we get down into really looking at the action itself proposed and how that impacts individual animals. We then look at the cumulative effects; and then finally taking all of that information and looking at what that means with respect to our jeopardy and adverse modification standards.

The definition of jeopardy is to engage in an action that reasonably would be expected, directly or indirectly, to reduce appreciably the likelihood of both the survival and recovery of the species allowed by reducing the reproduction and numbers of distribution of that species. In doing that, there are two prongs of our analysis. We're looking at survival and recovery.

In getting to that analysis, we first consider there would be a reduction in the reproduction numbers of distribution and then we look at evaluating whether any such reduction would cause an appreciable reduction in the likelihood of survival and recovery. We do a definition for survival listed on the slide here.

Survival means the species persistence beyond the conditions leading to its endangerment with sufficient resilience to allow recovery for endangerment. Recovery means improvements in the status of a listed species to the point at which listing is no longer appropriate under the criteria set out in Section 4(A) (1) of the Act.

We're evaluating if the effects of the proposed action when added to the status of the species and the environmental baseline and the cumulative effects noted on the previous slide will jeopardize

the continued existence of listed species. All federal agencies rely on the best available scientific commercial data. They ensure that their actions will not jeopardized the continued existence of listed species.

You asked for examples of types of information analyses that are considered in biological opinions. I can tell you in terms of right whale status and recovery, NOAA Fisheries has a variety of recovery assessment mechanisms. I listed them here on this slide just to give you an idea of some of the data sources we can consider when looking at our effective actions.

In terms of who is responsible for the consultation, SERO's Sustainable Fisheries Division, acting as the action agency, will request reinitiation of a consultation and provide information on the proposed action. The Southeast Regional Office may request science center data analyses to review as needed to assure the best available information is used.

I say, may; you know, we consult on a wide variety of species and some species we have more internal expertise than others. SERO's Protected Resources Division prepares the biological opinion and the document is reviewed at the Southeast Regional Office as well as by NOAA General Counsel, with the Regional Administrator having final approval of the opinion.

Where does that leave the council and you, the SSC, what is your role? Well, to date councils have received information on the development and status of formal consultations and related data, at least here in the southeast, but not draft biological opinions. However, in January 2015 NOAA Fisheries' policy directive on integration of Endangered Species Act Section 7 with Magnuson-Stevens Act processes now does outline a process by which councils can request draft opinions.

The directive led to recommendations from the ESA working group, which was convened by MAFAC and the Councils Coordination Committee to make recommendations on how to improve the involvement nationally of regional management councils in the ESA Section 7 process.

Under the policy directive, with the exception of preliminary reasonable and prudent alternatives or reasonable and prudent measures, only complete drafts cleared by General Counsel may be shared. Release of draft biological opinions to councils does constitute dissemination to the public. During formal consultation, NMFS may agree to release preliminary drafts of reasonable and prudent alternatives or reasonable and prudent measures prior to release of the entire draft.

However, during the formal consultation, no other individual component of an opinion may be released out of the context of an entirely cleared document, so we won't release just a draft section out and let it stand alone for a review. NMFS and the councils need to carefully weigh the costs and benefits of sharing drafts that have been cleared in accordance with the policy.

There can be a lot of workload, budgetary, and timing implementations. I mentioned the use of best available science, and I'll touch on what the burden of proof is in terms of is there a more precautionary approach in Section 7 consultations. First, in 1994 the Fish and Wildlife Service and NMFS did issue a joint policy providing guidelines for how the agencies will ensure their ESA decisions incorporate the best available science.

They specify six guidelines on implementing ESA decisions related to listing jeopardy consultations and incidental take. I'm not going to go into those, but I did want to talk a little bit about the next information on the slide as far as the House Conference Report, which states, "Statutes continue to give the benefit of the doubt to the species and will continue to place the burden on the action agency to demonstrate to the controlling agency that it its action will not violate the Section 7(A) (2)."

This is a recently cited piece of legislative history for Section 7. It was being portrayed more of a precautionary principle than perhaps in the Magnuson-Stevens Act. Given that Section 7 only creates requirements for listed species; the species is already known to be in trouble or they would not be listed. Consequently, it makes a lot of sense to require the proponent of an action to demonstrate that they actually will be acceptable.

Other burden of proof issues in terms of scientific standard versus legal judicious review standard; the legal or judicial standard of review for agency actions, including biological opinions, is in there with the Administrative Procedures Act and the Arbitrary and Capricious Standard of Review. In a nutshell it means do the facts documented support the decisions made by the agency.

I just wanted to kind of point this out as far as when – I guess I was just trying to share some information on what type of information is considered and sort of how a biological opinion is that record. Well, almost last, jeopardy versus non-jeopardy biological opinions and incidental take statements; if we determine an action is likely to jeopardize and leads to reasonable and prudent alternatives, we recommend reasonable alternatives to be in order.

For us to issue them, they have to be consistent with the intended purpose of the action, be consistent with the scope of the federal legal authority, be economically and technologically feasible for the agency to implement; and, of course, it goes without saying not jeopardizing the continued existence of listed species or result in adverse modifications of critical habitat.

Incidental take statements specify the amount of take, reasonable and prudent measures, actions necessary and appropriate to minimize incidental take, and terms and conditions of which are the specific actions that must be taken to comply with terms and conditions. Whether it is jeopardy opinion or not jeopardy opinion; once there is an established reasonable prudent alternative, you always have an incidental take statement with specific requirements.

I just wanted to end touching on some of the main points, which is that new information does trigger reinitiation of ESA Section 7 Consultation. Any increase in pot fishing from November to April is likely to adversely affect right whales and will warrant further effects analysis if it is different from the consultation history and what is established thus far.

The biological opinion will be on the Snapper Grouper FMP as managed under the South Atlantic Council, including all amendments to date and Amendment 16 as proposed. Then how extended the consultation time will be depends on many factors, including time needed to get information analyses, conducting the opinion, and potential delays and additional workload associated with the sharing of a draft if that option is exercised. That concludes my presentation.

DR. BARBIERI: Are there any questions or comments from the committee?

MR. WAUGH: I think you mentioned there were 16 interactions, and you couldn't rule out black sea bass pot gear. How does one get hold of the details of those interactions such that we could look at time, area, rope size and so forth?

MS. LEE: It was 17. I'm going to pause for a minute to see if Barb Zoodsma is on the line and wants to speak with respect to this information.

DR. ZOODSMA: Yes, Gregg, those reports are available on the Large Whale Take Reduction Plan Website. I think that information came from Amanda Johnson's paper, Johnson Et Al. But I would go to the gear report on the Large Whale Take Reduction Plan. That is where you would get that information.

DR. ERRIGO: I just had a question. Jenny, in your presentation you said that the assessments are produced by right whales annually; and then, Lance, when you gave your presentation, you gave us a minimum number of right whales or estimate of the number of right whales, and it was dated 2010. I was wondering if you had a more recent estimate of the number of right whales that are in the Atlantic, called the North Atlantic right whales, than 2010. It seems that even if there is a data lag, you should still have a more recent number, at least one or two years beyond 2010.

MS. LEE: I want to clarify. Assessment reports are updated annually. Beyond that, I'll see if Lance wants to respond.

DR. GARRISON: There is some lag, because there is a time required to actually go through and have people review the imagery from all the different data sources and do matching, so there is actually quite a bit of data lag in there. Let me see if I can look up while we're talking. The most recent final report, which is 2013 – there is a Draft 2014 report out – and see if there is anything more recent than that one. There is somewhat of a lag, because there is a lot of data processing to determine who is alive and who is not. The 455 number is the most recent number in a final stock assessment report; and that is based on data collected through 29 October of 2012.

DR. BARBIERI: Are there any other questions for Jenny, Lance, or Barb? I don't see any other questions. Many thanks to all of you who are from NOAA Fisheries and for taking the time to put together this very informative presentation and for addressing our questions. I think we are going to move on to the next agenda item.

MR. CARMICHAEL: Regulatory Amendment 16.

DR. BARBIERI: We are moving on to Agenda Item 14; Snapper Grouper Regulatory Amendment 16. We have two attachments that were presented in your briefing book; Attachment 18, Regulatory Amendment 16 Summary; and Attachment 19, Evaluation of Regulatory Amendment 16 alternatives, released March 31, 2015. We're going to get a brief overview here from Brian and then we have a number of action items for the committee to address.

DR. CHEUVRONT: The first thing, before we hear the updated report from SERO, I would like to just give you an update on what has happened with this amendment since the last time you

saw it in October so you know kind of where we are at this point. The council has seen this amendment twice since you have. In December they removed the alternative that would completely remove the closure of the use of black sea bass pots during the months of November through April, so that is off the table.

Everything that the council is considering now is the no action alternative, which keeps the closure in place between November and April, and there is now 13 other subalternatives that look at different closures based on time, area, depth, and things like that. The council added six new subalternatives in December, but they are all variations on that theme, depending on when it closes.

If you look at Attachment 18, it has a listing of all of the alternatives in there, and there are two notes at the end of each alternative. One note always explains that the closures that are described in that alternative only apply to EEZ waters; and that if that alternative is the one that is put into effect, the states will be asked to enact similar closures.

The other note tells you the source or the reasoning behind each of the different alternatives; so if there is a closure based on a depth contour, it tells you what that depth contour is and it usually gives those descriptions by state, so you kind of know where you are. Then there is a table that shows the lat/longs proposed for each of those alternatives or subalternatives and then a map showing that mapped out as well. That is kind of where we are with this.

The council has spent a lot of time working on this. There is now a second action that was added as well that looks at gear marking so that in the future, should there be a black sea bass pot entanglement, we'll be able to increase the likelihood of knowing that it came from a black sea bass pot.

There are alternatives in that action that look at reducing the weak link strengths as well as buoy line strengths. The council is trying to be proactive in gear modifications, as well as considering additional alternatives for closures; time, area, and things like that. That is sort of the background of what has happened since you last saw it.

DR. BARBIERI: Okay, any questions thus far for Brian? I think that helps a lot to kind of zero us into the current situation, the status of the regulatory amendment; so then the presentation.

DR. FARMER: I appreciate you guys giving me the opportunity to present this webinar rather than making the trip up to Charleston. As some of you know, I've got a new boy, eight days old. We are right in the middle of being in the trenches right now, so I will give this presentation on a few hours sleep. Hopefully, it will all make sense.

First off, I just wanted to thank all the various people who helped on this analysis up front, and that would be Tim Gowan and Jessica Powell and Barb Zoodsma, Dr. Lance Garrison, Andy Herndon, Bob Hoffman and Laura Engleby. I also wanted to just mention that the paper that the right whale distribution model is based on is published in Plus One.

I sent a PDF copy of that over to John along with the other materials. If you guys wanted to review that, it is available for you online and also there is a PDF available. This analysis has undergone a SERO internal review, a full and comprehensive review by the Southeast Fisheries

Science Center. You guys have seen it in October 2014 and it has now been reviewed by the Atlantic Scientific Research Group, which I think is kind of like analogous to an SSC for Marine Mammal Actions. It is a mandatory advisory panel under the MMPA.

They provide an annual review of marine mammal stock assessments and provide advice to NOAA and the Fish and Wildlife Service on issues related to the assessment of marine mammal stock. That group includes representatives from academia, the fishery industries, fishery management, and NGOs.

That letter I believe was also sent out finally; so if you guys wanted to look at their comments with regards to this analysis, those are available. The objectives for the Regulatory 16 analysis were to simulate the potential landings of the black sea bass trap endorsement holders that made it past Amendment 18A under each of the council's proposed alternatives. As Brian had mentioned, those alternatives have changed somewhat in their numbering.

In case you remember any of the alternatives from the last meeting, Alternative 2 was removed and subsequently everything got renumbered so they don't quite match the alternatives as they were presented in the October meeting. But what we did is we factored in landings by other gears and predicted when the commercial black sea bass ACL would be met and simultaneously considered the seasonal distribution of black sea bass trap gear along with North Atlantic right whales, and we compare the relative risk of right whale entanglement under each proposed alternative.

The SSC had a number of great suggestions for us at the October 2014 meeting, and we did try to address all of those. The first suggestion was to express risk as units not a percentage and that has been done throughout the report. Also to clarify that risk is approximated by the overlap between right whales and black sea bass efforts, and so we've added some information about how we did that and the methods in the discussion; and I've got a follow up slide on that in a few.

Also we were asked to provide additional detail on the history of black sea bass effort, and you'll see some figures here coming up that describes that historical effort; also provided some additional detail in the introduction results in Appendix A of the report, which is in your briefing book. We were also asked to provide additional detail on right whale entanglements and population status; and that is in the introduction of the report, and it was also covered very well by Dr. Garrison before lunch.

We were asked to provide additional detail on the North Atlantic Right Whale Distributional Model, and so we've really fleshed out that discussion of that model and the methods; also provided some additional appendices and provided the report for the SSC briefing book. We were asked to explore options for a monthly model off of North Carolina; so we've addressed that in Appendix B of the report.

We were asked to evaluate within-scenario uncertainty and we've addressed that in Appendix F of the report. We spoke with Dr. Jim Berkson and he reviewed the changes that we made and the way that we addressed within-scenario uncertainty. If you are satisfied with that, he had also suggested that we add an executive summary to the report, which has also been done. This is a figure of black sea bass landings through time, broken out by months.

The different colors on the bars denote the different months; and one of the things you'll notice as you look through it is that some of those winter months begin to drop out as you advance through time. Also, you can see the red text there with the lines showing the various regulations that are put into place to address the derby fishery that had developed and some of the effort restrictions that had gone into place.

This is the landings' time series; and if we go to the next slide, you will see the effort. The top graphic there shows the total number of basically pots that were taken out on trips during the full season; and again it is presented by months and by fishing year. You can see the various amendments being implemented later in the time series and the overall reduction in pots.

Then kind of zooming in on the winter, you can see the historical pot effort in the wintertime and the reductions in the wintertime that really began with that quota closure in May of 2009 and then continued forward. We had I believe a two-week season in December 2010, and the no pot gear in the water since that point.

Just to remind you guys how the modeling works to assess the relative risk; we looked at black sea bass trap landings and effort distributed in space, and then we looked at a distribution model of whales; and those distribution models for the whales were broken into two parts, a Florida through South Carolina model and a North Carolina model.

We used the overlays of the trap gear effort when the fishery was open to trap gear effort, with the percentage of right whales expressed either as a relative abundance in the case of the Florida/South Carolina model or a probability of sightings for the North Carolina model. We used those overlays to express a total risk until quota closure.

We basically set a baseline; and this slide actually needs a little bit of revision. It is the old Alternative 2 were set at 100 risk units, so that would be a complete opening to black sea bass trap gear effort; and Alternative 1, which was the complete winter closure was set at zero. All the other alternatives are scaled between those two extremes to give you a relative estimate of risk.

What we're using here as an approximation of relative risk is co-occurrence, and that is because there is little information on the fine-skill interactions between whales and pot gear, and so it is impossible to estimate the absolute entanglement risk without that entanglement rate. There are the few references that we provided on this slide and also the full references are available in the report.

But basically what happens in the assessment is that relative risk is assessed as the co-occurrence of whales and pot gear in space and time. The assumptions there are that the co-occurrence of right whales and pot gear represent true but unknown entanglement risk greater than zero, and that seems well supported by the pot gear entanglements observed and reported in the Johnson Et Al 2005 study.

The co-occurrence models of relative risk are a meaningful form of risk assessment; and this is a commonly applied approach in right whale and other whale risk assessment. There are quite a few references provided there from recent years. We address the SSC concerns for a monthly North Carolina model. This model was based on the USC-W surveys, which Lance has

described were kind of sporadic in terms of the years that they covered. Because there was a relatively limited set of data, it was easier and more appropriate statistically to fit the model to a long-term average over the full time series.

We used the aggregated time series to develop the model fit. Then in order to evaluate monthly differences for predictions off North Carolina, we fit that model then to monthly differences in sea surface temperature, which was the primary environmental driver for right whale distribution; and it showed the biggest contrast between months in that region.

That provided us with a way of estimating some temporal dynamics off of North Carolina with regards to predicted probability of sighting right whales. You can see in this graphic the North Carolina model and Florida through South Carolina model are shown differently. The Florida through South Carolina model is a deep mass where red denotes areas of high concentration and green denotes areas of relatively low concentration.

The North Carolina model is similarly is shown at the deep mass where the violet color shows areas of relatively high concentration and the pale blue color denotes areas of relatively low concentration. Basically due to the limited number of surveys and sightings, no temporal framework was considered in that model, so it used cumulative sightings and a cumulative effort and long-term mean water sea surface from all years and all months to build the model and then used monthly means through surface temperature data driven by observed temperatures from winter of ’03 through winter of 2013 to generate separate predictions from each month and the model fit to the aggregated winter data.

Basically, the main point here is that the monthly differences in the North Carolina monthly model treatment are based on differences in sea surface temperature, but not on differences in whale abundance or behavior. Just for additional information, the primary input for that model were sea surface temperature, depth, distance to shore, and fit.

One of the other things that the SSC had asked us to evaluate was within-model uncertainty to determine whether the differences that were presented between alternatives in terms of relative differences were actually robust to the uncertainty within the model. The way that we addressed this is we generated 95 percent confidence intervals around the mean estimates of right whale abundance for both the Florida through South Carolina and the North Carolina model.

Those confidence intervals were based on the inter-annual variation that was observed in modeled right whale relative abundance. The lower confidence limits were bounded at zero, which is consistent with the count data that was used to steep the model. The uncertainty was evaluated for all the catch rate and trap distribution scenarios within the mean right whale abundance scenario.

You guys might recall that we have looked at three different treatments of right whale abundance. One was during mean conditions; another was during warmer than average conditions, and a final one was colder than average conditions. We worked with Tim Gowan from FWC to generate those 95 percent confidence intervals; and the other components of the model then were treated as deterministic within scenarios and the uncertainty of those components was evaluated exclusively through the book-ending of a range of realistic scenarios.

This is the result for the monthly North Carolina model. In this graphic you can see the colored numbers indicate the different alternatives in Regulatory Amendment 16, including Alternative 9A there in green, which is the current preferred alternative. On the Y axis here are the projected black sea bass fishery closure dates, so you can see that there is a ranging from basically early August all the way through no closures until the end of the year, December 31st.

Then along the X axis is relative risk. The comparison here is on the left, the North Carolina annual model, which is the model where it takes the aggregated time series and fits it to mean conditions. Then on the right is relative risk for the North Carolina monthly model, which is the one where the sea surface temperature was allowed to vary based on the monthly mean over the observed time series.

I think one of the take-home messages from this image is that you don't really see a whole lot of differences between the annual and monthly model. Then if you skip over to the next slide, we have a table of the differences in North Atlantic right whale relative risk units between the annual, which is Table 2A in the attached report, and monthly North Carolina model, which is Table E3. You can see that for most of the alternatives the differences are really simply small.

The largest differences observed are six relative risk unit shifts for Subalternative 7C under Catch Rate Assumption Number 4. You may recall that the different catch rate assumptions were having to do with basically how we treated winter catch rates since it has been a very long time since the commercial sea bass pot gear fishery has been opened in the wintertime.

Under some of the catch rate scenarios, we used historical mean, under some of them we used scaled-up historical mean based on public observed catch rates in the summer season, and a few different treatments of that type of permutation. This figure presents the within-model uncertainty. You can see within the figure, it is very similar to the figure that you just saw.

On the Y axis is the projected closure dates; again ranging from about early August up to a no closure end of the season. On the X axis on the left is the relative risk for these Florida through South Carolina relative risk model; and then on the right is the relative risk for the North Carolina model.

You'll notice for each of the color-coded subalternatives, with the numbers and the letters denoting the alternative and the subalternative, respectively, that there are now error bars, and those are horizontal error bars, which expressed the relative uncertainty, the 95 percent confidence limit, in relative risk as evaluated through this approach.

You will note that those are relatively tight when you look at the differences between alternatives. Basically, the take-home conclusion from this graphic is that the model appears to be quite robust within-model uncertainty with regards to the relative differences between alternatives.

Within-model uncertainty was highest for Alternative 4; however, Alternative 4 remains distinctly separated from Alternatives 5 and 7, which provide the lowest relative right whale risk of any pot gear fishery opening considered in Regulatory Amendment 16. We suspect that within-model uncertainty is relatively low for three reasons.

As Dr. Garrison already discussed, there is pretty fairly high survey effort out there; and the Gowan and Ortega-Ortiz 2014 model shows relatively good fit for the right whale sightings per unit effort data. Another thing that makes this uncertainty look relatively small is that the X axis on the graphic range is all the way from 0 to 120.

So the within-model uncertainties for a given alternative may be somewhat large, but it pales in comparison to the differences between the alternatives with regards to the relative effective test in mitigating right whale risks. Another take-home message is that the comparisons are all relative within scenarios, so the 95 percent lower confidence limit of one alternative compared to the 95 percent confidence limit of another alternative is consistent through time and space.

To summarize things in discussion, it is challenging to predict the impacts of Regulatory Amendment 16. We ran a number of different modeling scenarios and sensitivity runs to try to capture what we thought might happen if the commercial sea bass pot gear fishery is allowed to operate in the winter.

There have been substantial changes in the fishery since the last time pot gear was applied in a winter season. It has been about five years. We used many scenarios. Those were four different catch rate scenarios, three different scenarios for the spatial distribution of traps, and three different spatial distributions for whales. We found that the results were consistent across a broad range of these sensitivity runs and that the differences between these alternatives appeared robust to uncertainty.

In conclusion, we found that the alternatives proposed in Regulatory Amendment 16 differed in their ability to maintain protection for ESA-listed whales in the South Atlantic region. Of all the alternatives, excluding Alternative 1, the no action alternative, it all results in an increase in relative risk of an entanglement to right whales.

Alternative 2 results in the highest increase in risk and Alternative 6, other than the no action alternative, results in the lowest increase in risk; and you can see that they kind of vary on a scale in this graphic. It looks like in the webinar version of this, the risk classification categorization, which is the final low on the graphic, is cut off.

I'm not sure if you guys at the SSC meeting can see that; but basically this color coding denotes low risk from 1 to 25 relative risk units, moderate risk from 26 to 50 relative risk units, 51 to 75 risk units is high risk, and 76 to 100 plus relative risk units is very high. That is the end of the discussion with regards to the changes that we've made since the previous presentation to the SSC. We've attempted to address the SSC's various concerns that you raised in October, and I look forward to addressing any questions that you may have.

DR. BARBIERI: With that, I will open the floor for questions or comments from the SSC.

DR. SMITH: I appreciate that the model uncertainty analysis was done. That was one of my major concerns the last time that we saw this. I was just hoping you could give us a little more detail on how that was done. In particular in Appendix F it says that 95 percent confidence interval was based on the inter-annual variation were used for that uncertainty analysis. But I just wasn't clear on 95 percent confidence intervals of what? Did you take the mean of the 10

years and then 95 percent confidence intervals of that or the 95 percent confidence intervals of the predictions? I was hoping to get a little more detail on that, please.

DR. FARMER: -- the entire time series, and then those model fits provided basically uncertainty in the model fitting. The uncertainty in the model fittings for both the Florida through South Carolina model and for the Florida model were then used to drive the confidence limit fit through the fishery risk evaluation model.

Basically what we did is we shifted the right whale distribution to the lower 95 percent confidence limit, and then we evaluated all the alternatives and then refit at the 95 percent upper confidence limit and reevaluated the alternatives under all the different catch rate and trap gear distribution scenarios. Those confidence limits are based on the model fit for that Gowan and Ortega-Ortiz 2014 model.

DR. REICHERT: One piece of clarification; in Slide 9 you have a figure out of that paper and you seem to indicate that is about abundance; but the figure, if you look at the paper, looks like the presence/absence figure there.

DR. FARMER: Right; so in Dr. Gowan's paper basically what he does is he fit the model solving for presence/absence and probability of an observation, so it is a two-part model. It is a zero-inflated GAM. There is a similar figure for the count portion of the model, but I couldn't fit it on the slide and still fit the text.

But basically it is a two-step model and there is uncertainty in both aspects of it. We shift the cumulative 95 percent lower bounds and 95 percent upper bounds when evaluating the uncertainty. It solves for, I guess, a probability of observation, but then he iteratively re-solves that model with assuming constant survey effort, drops survey domain for the Florida through South Carolina models, which then gives you an estimate of relative abundance.

DR. BUCKEL: One of my questions last fall had to do with looking at the monthly information off of North Carolina. I was interested in the empirical data; so if there was a transect that was flown consistently and multiple months, we could see that empirical data. I appreciate all the work you put into this.

What you've done is taken a model to all the data and then plugged in sea surface temperature, as you said, and some others. You don't really see much of a change, which you wouldn't expect, because there is probably not that much going on with the independent variables you've plugged in for those different months.

I haven't been through the whole report. Is there any chance that – you said there were data limitations off of North Carolina, but were there some transects that were flown consistently during those winter months that we could see, like a sightings per transect, the actual empirical data to help us choose between these alternatives or recommend?

DR. FARMER: Dr. Garrison would probably be the more appropriate source for that information. I believe he may still be on the line.

DR. GARRISON: Yes, I'm here. The empirical data actually is available up on OBIS-SEAMAP Website. I'm not sure; there is some degree of variation in the actual transect flown from one year to the next, because there were some differences in survey design for these particular surveys. I'm not really clear what you're actually looking to see. Is it just that you want to be able to see and plot the data itself or is there something in particular that you're looking for to analyze?

DR. BUCKEL: I wasn't looking to analyze anything; just curious in looking at the empirical data if we might see that the month of February was consistently low sightings per transect. That would help us in choosing between some of these alternatives or making recommendations. Right now the monthly data that have been provided don't allow that because it is the same underlying statistical model with those sea surface temperatures plugged in.

DR. GARRISON: You could certainly look at the data. I think I would have a hard time making too much inference based just purely on looking at the direct sightings per transect count, because in general they are fairly low. We don't have a lot of repeat sightings or repeat transects even in those surveys. The data are certainly publically available to be looked at in that way, I believe.

DR. ERRIGO: Actually, I was just going to address Jeff's question. I have all the UNC-W transect data downloaded from the OBIS-SEAMAP Website. I also have petitioned for and gotten all the North Atlantic Right Whale Consortium Survey data. I've done sightings-per-unit-effort calculations and whatnot by breaking it down by different areas. I've done it by statistical grid; I've done it by latitudes and bins and things like that. I have that information. I you would like to see it, I would be more than happy to show it to you.

MR. WAUGH: I was wondering your thoughts on continuing to keep an alternative in the analysis to remove the closure when there is not one in the amendment any longer. I was just wondering what the rationale was for keeping that in the analysis.

DR. FARMER: Well, the utility of it is that you are expressing everything on a relative scale, and so that is the most stable relative scalar; so you've got to know everything is closed and everything is open and you run your relative scale between those two points. Although your total risk unit might vary somewhat – although, honestly, they probably wouldn't, Gregg, just because the Alternative 2 that is in there right now evaluates out almost exactly the same as the previous no closure Alternative 2.

I don't think it would have a big impact or any at all, visually or mathematically, but it provides a stable baseline for the evaluation. Given the evaluation is expressed in relative units; I found that to be of value to retain. But from a functional perspective, I think you would get the exact same answer if you divided everything by the new Alternative 2, which is the soon to be gone right whale critical habitat.

DR. BARBIERI: Are there any other specific questions for Nick or other members of the team? If not, I would like to point you to our action items that we need to get addressed for this agenda item; consider whether SSC comments of October 2014 are addressed in the revised alternatives analysis; two, recommend whether the revised SERO analysis of Regulatory Amendment 16

alternatives represents the best scientific information available; and three, comment on biological, social, and economic analysis in Regulatory Amendment 16.

DR. CHEUVRONT: When you're ready to talk about the social and economic analysis, the SEP has discussed that; and the biological analysis that is in the document basically says that regardless of what alternative you choose, it is really not going to have a biological effect on black sea bass because that is controlled by the ACL. I don't know how much more discussion you want to have on that. I'm sure John will have the SEP's report for the social and economic analysis for that when you're ready for it.

DR. ERRIGO: This is in regards to Jeff's question. I have graphs and tables like this one. It is sightings-per-unit-effort data by month across – I believe latitude bin was the best way to look at it; because the smaller I broke down the areas, the less and less data there was to look at; so it started to get really funny looking.

I included the tables of the number of sightings, the effort, and then the sightings-per-unit effort. The effort is in kilometers surveyed, which seems to be the standard unit of effort that is used for these aerial data. I had hours surveyed as well and they showed the same trend. These graphs show the bars are the sightings-per-unit effort and then the line here is hours.

These were done in hours; but the kilometers showed the exact same trend. This shows the effort. If you want to see this, it can be sent around. There is one for each month. There is February, that is January, March, April, and I caution you to be wary about like huge sightings-per-unit-effort data; like in that 36 latitude bin, it is a single sighting with 35 hours over the entire time series, which is about 25 years. I can send that around if you would like to see it.

DR. BARBIERI: But we do know that we have at least a couple of members interested; so, yes, if you could go ahead and distribute to the committee; that would be great. Addressing our first action item, I would like to have some committee input on whether the SSC comments of October 2014 are addressed in the revised alternatives analysis that Nick just presented. Any disagreement that Nick's revisions accomplished what we requested to be accomplished?

I'm not seeing any disagreement with that. Mike, if you could, just help us capture that committee consensus. Going on to Action Item Number 2; recommend whether the revised SERO analysis represents the best scientific information available. Any disagreement that the revised analysis addresses our comments and can be considered the best scientific information available? I am not seeing any disagreement around the table. Gregg has a comment or a question.

MR. WAUGH: Sorry, just a question. Will you go back up to the SSC comment? Your comment before was you can't use the co-occurrence of whales and pot gear as a measure of risk. The analysis continues to do that. One of the clarifications we are looking for is it now your opinion that it is okay to use that co-occurrence as an indicator of risk, such that now in the amendment we would be talking about risk; whereas, before we weren't making that change based on your comments from the last time to not use that as risk, because it wasn't truly representative of risk; so if you could just give us a little more clarification on that, please.

DR. SMITH: I think we can characterize it as relative risk at best.

DR. BARBIERI: Yes; and to that point, Nick's slide Number 7 actually does mention the co-occurrence as a proxy of relative risk.

DR. REICHERT: I agreed with Will; that was addressed by taking out the percentage, because that gave an impression of a percentage risk. An additional comment I had – and I think we discussed it briefly – although I know that is not included here and will be difficult to include is the consideration of how the pot fishery is conducted in the region, because I think that has some relationship with the risk, but that is not part of the analysis.

DR. BARBIERI: Is this something that you would like to have addressed more specifically as a concern?

DR. REICHERT: Maybe not under this point, because we knew that was not part of this analysis. But in our overall recommendations to the council, it may be something we want to consider or discuss briefly.

DR. BARBIERI: Going to the third action item, recommend whether the revised analysis represents the best scientific information available. Any disagreement from the committee that given the data limitations and the effort to look at different scenarios and incorporate different types of information; that this represents the best scientific information available?

I am not seeing any disagreement, so we'll then put down that we have consensus that this is BSIA. Finally, and Brian already gave us a good introduction on that, we would like to hear some of the comments from the social and economic analysis in Regulatory Amendment 16 that our SEP looked at during their meeting yesterday morning.

DR. WHITEHEAD: We heard a presentation from Brian that looked at the economic effects of the various alternatives. We were asked specific questions on Action 1 and Action 2. On Action 1, there were five questions. The first one is two time frames were used to calculate price per pound per month; would it be beneficial to include other time frames?

Our answer is no; the SEP felt that no additional price analysis with other time frames is necessary. Additional analysis might add some variation, but it would not be enough to change the recommendations from the analysis. The second question; the report uses information from an analysis by SERO that projects expected closure dates under various scenarios.

Where there was a range of closure dates, it is due to estimated closure dates based on differences between three different scenarios that were used to calculate trap placement for each month. The analysis used for the economic effects only used one of the three modeled scenarios for where pots would be placed.

Is there value in repeating the analyses for the other two pot placement scenarios? Our answer again is, no, additional analysis using other pot placement scenarios is not necessary, because the SEP felt that there would probably be not much variation. Third question we were posed is are there additional social or economic analyses that the SEP recommends be completed for this action? We recommended that additional economic analysis be considered. We discussed at length more price analysis, more efficiency analysis, incorporating changes in fishing cost, and considering addressing the risk associated with expected returns.

I won't go into the details on those. The fourth question is what additional recommendations does the SEP have for Action 2? No, that was the third question; so the fourth question is does this analysis represent BSIA? Yes, the SEP feels that this is the best scientific information available, but is interested in sensitivity analysis resulting from investigating variation in prices, priced by fish size and additional ways that capture changes in trip efficiency.

These were the things that we were suggesting in Number 3. Additional sensitivity analysis is not likely to fundamentally change the results of the economic analysis, but additional sensitivity analysis would provide more confidence in the results. In other words, we couldn't help ourselves in making recommendations, but we don't think it is going to change anything.

With Action 2, there were four specific questions. The council has requested that the SEP look at how Action 2 is structured. Does the SEP have recommendations regarding this action? Action 2 involved gear changes. The SEP has no recommendation on how Action 2 is structured.

Question 2; are there additional social or economic analyses that the SEP recommends be completed for this action? We answered, yes, the SEP recommends that the analysis includes estimates for any potential loss in yield and the associated cost from the potential gear changes that would result from this action, for example, loss in traps.

Ideally the gear would be tested for reduction in breaking strength and diameter with trap weight to minimize potential cost or losses to the fishermen. In addition, the data sources for the cost used should be referenced. Third question; what additional recommendations does the SEP have? We answered to the extent possible consider the opportunity cost of re-rigging the gear, especially if there is a specified time period, and input from fishermen on how this would affect them.

Then the fourth question; does this analysis represent best scientific information available? We said no. The SEP feels that this would be the best scientific information available after the addition of information on the potential cost of lost traps due to the gear requirements. That was it for the black sea bass. I don't know if this is the right time, or if you want to do it later, wrap this issue up later, we would like to make one clarification to the earlier oral report that I gave.

DR. BARBIERI: Let's just finish the discussion of this specific item. Brian, anything else from your perspective there?

DR. CHEUVRONT: Yes, it would be good for you to look at Action 2, because you haven't seen it yet, so let me pull that up. Action 2 is on Page 56 of that summary document. It is Attachment 18, but I've got it projected here. As I said earlier, the council is interested in considering gear modification to; one, should there be black sea bass pot engagement with North Atlantic right whales; that there would be less likelihood that the whales would become entangled in the gear.

The thought that perhaps one of the ways to deal with that is to reduce the buoy line strength and to reduce the weak link strength. Then there is also consideration of marking the buoy lines so that they could also be identified as being from black sea bass. Now the Atlantic Large Whale Take Reduction Plan has some line marking and other requirements in there.

That is what Alternative 1 is; basically it is stating what the current requirements are. There is a 2,200 pound buoy line maximum strength for Florida, Georgia, and South Carolina; there isn't one off of North Carolina. Breaking strength of weak links must not exceed 600 pounds in federal waters off of Florida, Georgia, and South Carolina as well.

The current buoy line markings that there has to be at least three-colored marks of 12 inches in length and they must be green and orange; from November to April 15th, black for offshore; September 1 to May 31, orange, which is the one that applies to us here in the South Atlantic for the southern nearshore trap pot water area; and that is September 1 to May 31.

You can see here, this area here is the one that we're talking about, the southern nearshore trap area. That goes up to the end of Long Island, so that is basically the South Atlantic/Mid-Atlantic we're talking about here. The council does not have a preferred alternative here yet. They are still trying to figure out how they want these things to be structured.

They asked in March – knowing that the Snapper Grouper AP was going to be meeting and the SEP and the SSC would all be meeting this month; they asked if we could get you to comment on these other alternatives and figure out ways that we should maybe structure these or suggestions on how we might want to look at some of the gear issues and things like that.

Alternative 2 has to do with a modification of the buoy line breaking strength. This would apply to North Carolina; and then the breaking strength of weak links must apply to all the South Atlantic states. They were going to reduce the weak link strength to 400 pounds for off all the states; from 600 pounds off of South Carolina, Georgia, and Florida; and add the 2,200 pound to federal waters off of North Carolina for the breaking line strength.

Now, one of the issues is that should the – Subalternative 2A is only to make these requirements November 1 through April 30th versus making them required all year round. Now, John Whitehead, please correct me if I'm wrong in this; but when you were discussing this with the SEP yesterday, the decision was it really ought to be up to the fishermen to decide whether they want to switch out that gear or not based on whatever determination they want to use economically to do it.

I don't know if I'm going too far out on a limb here; but if they were to make a recommendation, they would probably say 2A, just require it during that time period if pots are allowed to be open from November through April, and then let the fishermen decide whether they want to follow those guidelines for the rest of the year or not.

Alternative 3 was one that looked at modifying the band on the buoy line for the marking. Right now the alternative, the way the council had discussed it, was simply to add a two-inch wide colored band to each end of the required 12-inch colored mark. Well, in talking with folks now about this, a lot of the identification of gear and things is not done from physical inspection right there with the gear. Sometimes it's done by air and things like that.

There is some concern that a two-inch wide colored band is not going to be visible enough from the air. There is some discussion about that; but I think the council clearly is considering some kind of additional marking on the buoy line so that should there be a whale that is identified in pot gear; that if we had the additional color on there, perhaps it could be identified as to being

from black sea bass pot gear, because that seems to be a big unknown right now. There is some pot gear entanglement things that have gone on, but there is a lack of specificity as to which fishery it comes from.

Again, the subalternatives say should that additional color be required only November 1 through April 30th or making it year round? It literally would require; -- I mean the fishermen would have to change out the entire buoy line if they chose to do that. Then the last one, Alternative 4, is then the council got to talking about, well, let's think about this buoy line strength and instead of just making North Carolina follow the same maximum line strength that South Carolina, Georgia, and Florida have to follow; let's reduce the buoy line strength for all of those states; because if the line was able to break easier, then there might be fewer entanglements.

There was some discussion amongst council members, and there was some discussion around the 1,200 pound breaking strength as a maximum. Then there was discussion as to, well, should we describe it in terms of pounds or should it be in a line diameter; but there are several different kinds of buoy lines that can be used and diameter strength is different based on the different kinds of buoy lines. It gets a little bit complicated.

What the council seems to be asking is do you have any direction or advice that you can offer the council as they consider gear-marking modifications for this fishery, whether it is weak links, line strength, painting, or modifying the colors. In fact, as it is now we had thought that some of the fishermen are using paint to paint that line on there; but then talking to other fishermen, what they actually used is surveyor's tape they can weave it into the rope.

What that allows them to do is that if they lose some of that as it comes out while they're fishing, as they're pulling the pot, they can just reweave it back in and just keep on fishing, and they don't have to stop using that pot and bring it back to shore and replace the line or repaint it or whatever they have to do. Some fishermen find that to be a little more efficient. Anyway, if you all have any suggestions that we can pass on to the council regarding gear modifications, it would be great to hear from you.

DR. REICHERT: I have a quick question. I remember that some of this was discussed at the council meeting, if I'm correct. Do we know anything about loss of gear relative to one or the other line strength?

DR. CHEUVRONT: There was some discussion, because we've got a couple of people on the council who either are currently participating in this fishery or have participated in the past. This 1,200 pound strength came from them, thinking that there would not be much pot loss based on that 1,200 pound strength. But then there was also discussion about at some level of NMFS they have pot-testing or gear-testing capabilities. There was some discussion that maybe there should be some gear testing that goes on with this before settling in for sure.

DR. SEDBERRY: Do you know if any of the changes in line strength or line diameter would involve changes in the pot hauler gear?

DR. CHEUVRONT: I can't specifically answer that, but we've got some guys on the council who use it. We talked about this and nobody mentioned anything about any modifications to the pot hauler gear. I don't really know in terms of diameter going from 2,200 pound maximum

strength to 1,200 pound maximum strength would do in terms of diameter of the line. We really would need to talk to a pot fisherman or a former pot fisherman if they wanted to weigh in on how the lines and the weak links work together in terms of retrieving the gear. I think Council Member Mark Brown is coming to the table.

MR. BROWN: Yes; I used to have a pot permit, but it has been many years ago. It didn't take much line strength to pull them; because like I said yesterday, the traps – and you're fishing individuals. You are not setting a line of traps; they are individual traps. They are a modified crab pot or a crab trap. They are light; they don't weigh much. When they get full of fish, the fish, as you start to pull them off the bottom, they expand and then they start to float. It doesn't take much line strength to pull the trap in. I never used a pot hauler; I would just haul them by hand.

DR. ERRIGO: At the December meeting there were several black sea bass pot fishermen there. At least one or two of them actually mentioned that they currently or previously used 1,200 pound line already. I guess they can use it effectively. That suggestion had come from the pot fishermen.

DR. SEDBERRY: What Mark said just had me thinking about if the traps are so light, it might be really hard to get a line that has got a breaking strength that a whale wouldn't just pick up the trap and swim along with it.

DR. CHEUVRONT: But I think that is part of the purpose of the weak link is that has got a much lower breaking strength of only 400 pounds. I think Chip can respond to some of that.

MR. COLLIER: I was going to respond to another part of the issue, but there are two different parts when you're fishing pots. There is the breaking line strength and then there is the safe working load. Usually the safe working load is about a fifth of what the breaking line strength is. That is a consideration for the safety of the fishermen.

As far as the gear that is being used, it varies between five-sixteenths and a quarter with guys being willing to drop down to five-sixteenths for the most part. That five-sixteenths corresponds to around a 1,200 pound breaking strength. That can be as low as 400 pound safe working load. There is a lot to consider when you're looking at this gear and trying to specify exactly what the breaking line strength is because over time it is going to degrade. In the beginning it could be 1,200 pounds; but as soon as you put it in saltwater and let it fish for a few days, it is going to drop; and that will be a consideration for the fisherman as well.

DR. CHEUVRONT: The other concern, Chip, was about whether pots would break at the weak link if it gets entangled in a whale. I remember we had some discussion about adult whales and juveniles and things and potential breaking strengths.

MR. COLLIER: Yes; Kathy Knowlton put together a report and you can kind of see a relationship between breaking line strength and the size of the whale and potential mortalities with that. That is where I think they came up with around 1,700 pounds or 1,800 pounds was pretty good for large adult whales. They have not developed it for calves. There has been so few gear recovered from calves to develop any good working relationship; and that is one of the big concerns with the southeast and the pot fishery is interactions with calves.

As far as what level would actually break of black sea bass pot; I really have no idea. I have been trying to wrap my brain around that. I just can't see it happening. Maybe if it gets caught on a rock when they're swimming is the only time that line would potentially break.

DR. ERRIGO: The only way I can see it happening is if the weak link kicks in the way it's supposed to. The idea is the whale swims into the buoy line, hits the buoy line, the trap hopefully will stay where it is. The line will pull – the whale hits the buoy and pops the buoy off. If sea bass pots are truly that light, however, they may pick up as soon as the whale hits the buoy line.

However, if they are that light, they may not do as much damage as picking up a lobster pot trap trawl or lobster pot trawl, which is much heavier and will dig into the skin faster and deeper, let's say. But I don't think there is any data to look at the effects of those particular types of gear when a whale gets entangled and what that effect is on the whale itself.

They know that it gets entangled in pot line. Then actually many whales they say have gotten entangled in lines and gotten out of it or survived. I don't know if you even have estimates of what the survivorship is after getting entangled. There is a lot of uncertainty in terms of that.

DR. BARBIERI: Thank you for the informative discussion. If there is any recommendation specifically from the committee members, I think this would be good. If not, I think there will be an opportunity for staff, working with different panels and committees, to put together some kind of a draft of multiple options that we can review and then provide you some feedback on.

DR. CHEUVRONT: Yes; and just to give you a bit of timing, part of this for this amendment, a lot of it is going to hang on the biological opinion and when that is received. But if it stays on plan, as we're hoping it will now, you will see this again in October and the council will have final approval on it in December of this year.

DR. BARBIERI: Thank you for that, Brian, because it is good to know how those things are going to be sequencing. With that, we actually complete our Agenda Item 14. Let's have a ten-minute break; and then as we return, I think we start with John Whitehead clarifying some of the issues that had been discussed earlier as part of their oral report. Then we dig right into Snapper Grouper Amendment 36.

All right, everybody, it is 3:00 o'clock sharp, and I am requesting committee members to return to the table so we can resume discussion of our agenda items. We will have Agenda Item Number 15, which is Snapper Grouper Amendment 36. I forgot that I had discussed a quick update or correction from John Whitehead.

DR. WHITEHEAD: This morning I mentioned that the SEP concluded that maybe one pro of a derby fishery is that it would lead to higher prices. Upon further review of that statement, the SEP retracts it; and we do not think a derby fishery would lead to higher prices. I would be happy to elaborate.

DR. BARBIERI: No need, since that was a very brief and clear clarification.

DR. WHITEHEAD: I think our report is finished, and we'll send it to Kari to clean up and it will be available for people to read at some point with details if there are any questions from any of you folks.

DR. BARBIERI: Okay, and by the way, many thanks to you and the other members of the SEP who actually put some extra time, really above and beyond, in terms of coming and meeting specifically for the SEP right before the SSC meetings. That really gives us the opportunity to get your input in a way that is better organized.

You had the opportunity to discuss all the issues among your peers. It is just very helpful to us in getting your report and incorporating that as part of ours has been a major help. We really appreciate the time and effort that you guys put into that. With that, I think we will proceed for Agenda Item 15. Jeff Buckel.

DR. BUCKEL: I had a chance to look at the spreadsheet that Mike Errigo sent in regards to the right whales, the item we just left. If you could scroll back, Mike, we made the statement that the report was BSIA, but my suggestion would be that the council also sees Mike's spreadsheet. That provides that monthly breakdown of the actual empirical data. I think that would be helpful to see that instead of only the model that put all the data together and then made a probability of sightings for all the months combined; that index analysis. If there could be a modification or discussion, if people don't agree.

DR. BARBIERI: Any feedback, comments from the committee regarding Jeff's suggestion? I have not, Jeff, had the opportunity to go over the spreadsheet, so I haven't been able to really evaluate what's there. I don't know if a lot of other people have either; but we're going to have some opportunity to discuss this I guess sometime tomorrow and then during preparation of the report, so I appreciate you bringing that up. We are ready now to engage into Snapper Grouper Amendment 36.

MR. WAUGH: I would just call your attention to the material in your overview, because this includes some of the material that we're going to get the council to look at during their meeting in June. I can run through the presentation, but I think it would be more efficient at this stage to call your attention to the broad goals that we're trying to achieve and then get your input on the specifics that are going into this system management plan.

The purpose; we're trying to get them to hone in on the purpose being to document spawning events in protected areas and characterize these protected areas in terms of bottom topography, habitat, fish occurrence, fish spawning, oceanography, et cetera. We're looking for these special areas that seem to be important for lots of different species.

I'll show just a little bit of this in a moment based on some more recent research. But then how we measure success, how is it working; we plan to document spawning events in these protected areas using a combination of citizen science and fishery-independent sampling. Where we really need your input now, as we'll get it in a few minutes, is on the objectives that are going into this system management plan.

We're putting together a system management plan that will lay out the specifics of what research, monitoring, enforcement, outreach and so forth need to be done. This is available on

our website if you want to download it and look at it in more detail. As I said, I'm going to go through pretty quickly. We really thank Will Hayman and Kyle McCain from LGL Ecological Research. They did a lot of this work cooperatively with our fishermen.

Just having gone through some of the public hearings; that is really a huge benefit when you can show fishermen that you've got recent information that they have been out on the vessel as well. We've got background on how the council got here. You all know this stuff, so I am not going to go through this in detail.

Here is the current purpose, and as I indicated we're going to get the council to refine this a little more; but they want to identify important spawning habitat for snapper grouper species and also reduce bycatch and bycatch mortality. We have a special management zone process that has been very successful.

It is a tool that is in the original FMP from 1983, but it is limited to artificial habitat, so we want to expand that to apply to these spawning SMZs. We've established lots of these special management zones, many of them in state waters, the EEZ; but we've focused on limiting the types of gear.

More recently in the last action we limited harvest of snapper grouper and coastal migratory pelagic species to the bag limits. We want to expand that process to address these natural areas that are important for spawning. We've got some graphics in here that I'm going to skip. You are welcome to look at that on the website.

But looking down at Riley's Hump – and you've seen some of this before, but we're looking for areas that are important for a number of different species. You've got in Riley's areas that are important for mutton snapper, some for cubera, and some for black and scamp grouper. This is showing the mutton snapper moving back and forth; that's the graphic.

Here is what I wanted to show you. This is more recent work that Will Hayman has done. The council put some funding towards this; Pew had funded him for some research last year. That didn't cover through the entire spawning season, so the council put some money into having him complete his work during the 2014 spawning season.

This is an area in Devil's Hole or Georgetown Hole off of South Carolina. All of these spots indicate spawning for different species. A special thanks to MARMAP for working up all of these samples that came in. That was a big load and thanks to Marcel and the MARMAP staff. But we've been able to – Will, working with cooperative fishermen – document spawning for blueline tile, gag, greater amberjack, mutton snapper, scamp, snowy grouper, Warsaw grouper, and yellowedge grouper.

And in particular looking at speckled hind and Warsaw, we've got spawning fish or in spawning condition in this area as well. The approach we're taking is to specify a process for identifying spawning sites for snapper grouper species, including speckled hind and Warsaw grouper, based on the characteristics of the site.

We're not making any changes to our existing SMZs; we're only prohibiting snapper grouper species. The first couple of actions deal with modifying the process. I'm not going to go

through these sites. We've got sample sites off of each one. I just will focus in on the site off of South Carolina, the Georgetown Hole. This one is one mile – this one is a size and configuration that was suggested by one of the cooperating fishermen, and our advisory panel has approved a site no larger than 3.1 square miles for this area.

Then here is a larger area of 13.8 square miles to pull in this point. I am not going to go through the specific sites, but I just wanted to show you what we can do when we have more recent research. A part of this is looking at sites like this. We've also got sites where we're trying to propose spawning SMZs based on just the bottom topography without any actual fish data.

The fishermen are having a lot more difficult time dealing with those and less support for those. We're also moving one artificial reef MPA site off of South Carolina. The material was placed right on the edge. Unfortunately, it went right on the edge and just outside of the area due to currents and winds. We're just sliding that box. Then we're going to allow transit and prohibit anchoring.

I wanted to talk a little bit more about the system management plan, because one of the criticisms we received is you haven't done all the work you should have done in your existing MPAs, so why are you talking about new ones. The way the council is responding to that is we're creating what is called a system management plan that will lay out all the research and monitoring.

We'll use citizen science and fishery-independent surveys. The outreach part, the council staff will take the lead. Enforcement will be a combination of citizen science involvement, the use of satellites to document activity in that area, and then the more traditional law enforcement. But we're also going to try to come up with – chase funding to accomplish this work.

John is heading up a program in-house trying to get a citizen science program established where we would work more formally with fishermen. You can stretch your research monies a lot farther. This is in fact what has happened with Will Hayman working with one of our fishermen. We're going to institutionalize that, and that is going to help us address the concern about our existing MPAs.

We'll also have an appendix in Amendment 36 that will lay out these specifics for our spawning SMZs. Here are the goals and objectives. We've got a larger graphic that we can leave up when you want to talk about this; but I think this is where we could really use your help now. The timing is that the council will take additional public comment at our June meeting and then they're going to select sites to go out to another round of public hearings.

This time out we told people that these are sample sites that give the public an idea of the size and number and area that the council is looking at; but they will actually pick the sites that they want analyzed in detail at the June meeting. Some of those sites were ones suggested by our MPA Expert Workgroup that George chaired.

That information is based on the work from MARMAP over the years. We don't expect a huge change in these areas, although we have gotten a suggestion for a new site in North Carolina and possibly moving a site in South Carolina. Then that will go out for another round of public hearings. The council will look at that in September and give us a little more guidance. At your October meeting you will see a pretty complete document.

Their final approval will be in December, so you will have a chance to see the complete analysis; and I think that is a time that you can weigh in on the sites and so forth. But at this stage we would really like any input you can give us on what should go into the specifics of the goals and objectives for this system management plan.

We got some input from the Socio-Economic Panel yesterday. For instance, on outreach our top priority is to work with fishing chart manufacturers to get the sites of the MPAs; and if we do propose these spawning SMZs, to get those on both the printed and electronic charts. This system management plan will have tasks related to the goals and objectives right down to individual projects with the details of what is to be accomplished, timing, and estimated cost.

The hope then is that we can go out and find funding; or if someone is interested in doing some work using cooperative research, then there is a nice outline there as to what could be done that would be very useful to the council. That is all I wanted to cover with that. We've got a little more detail here on the goals and objectives for biophysical, if you want to weigh in on those.

Again, what the council is keying in on is how do we measure success and whether these are working, and that would be to document spawning events in those protected areas? What we're really looking from you right now is what monitoring should be specified in this system management plan to document spawning and then what research should be specified to characterize those sites? Any information you can give us now will go into that document. I would be glad to answer any questions.

DR. BARBIERI: Thank you for that overview, Gregg. Before we get to address our specific action items in our overview document, let me open the floor for general questions, clarifications that committee members may need; so questions for Gregg, if any. Well, seeing none; we can move right along to our first action item.

It is a question that Gregg has already posed; what monitoring should be specified in the system management plan to document spawning? What research should be specified in the same system management plan to characterize the sites? Basically, if we can provide some input on those two topics, Mike will be capturing some of those comments, notes, and recommendations.

DR. CROSSON: Are you asking for like variables that should be monitored? What are we looking for here; I don't understand.

MR. WAUGH: Well, for instance, the monitoring that has been done so far with Will working in conjunction with the fishermen is dropping a camera down to document what is going on visually and then collecting samples to bring back; and MARMAP has worked those up. That is sort of the type of monitoring we envision to document what the spawning condition is in these sites. Anything beyond that – and I know it is early in the process, so don't feel like you have to come up with something. If you want to hold off until you see more detail and think about it, then that is fine as well.

DR. CROSSON: So the spawning increases is what you're trying to measure. The actual research that you just described, dropping the camera down there, is just a way of figuring that out. You are asking for suggestions for both right now?

MR. WAUGH: For monitoring and for research, yes.

DR. SEDBERRY: I'm not sure, but I think that the sample size that Will has collected so far is pretty small, especially relative to the existing MARMAP database. I still think it is important to continue that kind of work to monitor and to make sure that spawning is continuing in those sites.

We know the exact spawning locations for many of reef species that aggregate can move around a bit depending on hydrographic conditions and the phase of the moon and a number of other things. I think that what Will has done so far is important; it just needs to be expanded and continued. I also think it would be really important to put out some satellite track drifters on those spawning locations to see where those pelagic stages might be ending up.

We had done some of that work, unfortunately never published, but I have the data if anybody is interested in it that we could donate to the cause. Again, it would be I think essential to continue that because the hydrographic conditions on these sites are so variable. Particularly Devil's Hole/Georgetown Hole is right there in the Charleston Gyre and that can shift north or south great distances. We just need to keep an eye on what is going on to make sure we've got these SMZs in the right place and that one small place is adequate.

DR. GRIMES: Well, he pretty much said what I was going to say. Your sampling means sampling adults, looking at the gonads, doing histological work on the condition of the gonads. I would think you might want to do some ichthyoplankton sampling. Probably the larval stages of the species that they're mainly interested in have been described and pretty well known, right?

Along the same line is drifters, in the context of ROMS modeling and that sort of thing about what the flow is like and where things will end up, or what will retain them, and if they are retained. I guess detailed bathymetric maps and that kind of stuff have all been done, I suppose, or would you probably want to do that?

DR. SEDBERRY: There has been some mapping of some of those sites with multibeam sonar, but I think there is still some connection that needs to be done to map the reef that is in between them.

DR. REICHERT: I had a couple of comments. I echo what Church and George said, and I think we need all of those. Some species, you can look at behavior and it is clear that they spawn. For other species, we really need to get the biological samples. In that respect, I think perhaps the smaller the area, the more difficult it will be to obtain those samples.

That may be a consideration. George mentioned species aggregate; and in the southeast region, besides the Florida Keys, we've seen groups of individual spawning, but I don't think we've seen – to my knowledge we have not seen the aggregations as people understand aggregations in terms of thousands and thousands of species aggregating.

Something I mentioned in the past is that we have a lot of information on particular areas because we've sampled there. That doesn't necessarily mean that these species do not spawn in other areas. We simply do not know because we haven't sampled there. Although I do admit that there are particular geographical features; because of the features and the current

surrounding them, there is a higher likelihood that spawning by multiple species may occur in those areas.

I think that is the Georgetown Hole that showed those particular yield morphological features that may make that spawning of multiple species there much more likely. I think that is why this area was chosen. That refers to some of the work that Nick Farmer and others have done, some modeling work that they've done. I think that is what I had here.

DR. BARBIERI: Are there any additional comments or questions? As Gregg pointed out in the beginning of his presentation, this is a first presentation to the SSC. We are going to see this again at our October meeting and perhaps have at that point more details on some of those features or characteristics of the plan here that we can comment on.

DR. GRIMES: Just a question along the lines of the citizen scientist there; is it too deep to encourage divers or dive clubs or any of that kind of thing to get involved without the risk of killing some of them?

MR. WAUGH: Yes, most of these sites are too deep; I think all of them. We did speak with some folks on some of these public hearings that are mixing their own gas to dive; but I don't think that is anything we would want to encourage.

DR. BUCKEL: I guess a word of caution with the citizen science aspect of it. I have not been involved directly, but I hear colleagues and they talk about trying to use citizen science time series; and it ends up that it is so variable there are problems because different citizens collected the data differently. Since you're starting out now, now is the time if you have someone that is really riding herd on the citizens and making sure things are being done consistently, so the data that come out of this can be used.

MR. WAUGH: Yes; and this is certainly a learning process for us. John has been working with a group. We have a small workgroup that is developing this. I don't know if John wants to go into that a little bit more. But this has a much longer history in avian research, and some of the folks that have been involved in this are interested to try now applying it in the marine area. I think there is a chance for some limited funding initially to get this thing off the ground.

MR. CARMICHAEL: Yes; so since it's come up, I will fill you in a little bit. We had a lot of discussions with this at the March council meeting, and we've got a group that is working to first-step organize a workshop and talk about citizen science. What would a citizen science program in the South Atlantic look like?

We'll bring it up with the council in June and hopefully get some support such as funding and whatnot, but we're looking at probably early next year to have a workshop and convene fishermen and certainly folks like the SSC and try to get some experts with experience in citizen science outside of the marine environment where most of it applies, and try to decide what a program looks at.

I think most everyone who is on the organizing group is here. It is Michelle and Mark and Ben and me and Bonnie and Leda Dunmire of the Pew, who comes to a lot of the council meetings, so they're interested in that. She has done a lot with citizen science. I think that is everybody.

There is a lot of interest in it and it seems to be very timely. We're hoping to get a good first step and get this rolling.

We're kind of looking toward what is going to be some good projects to really get it started and take advantage of the momentum. You'll be hearing more about that probably in October and hopefully we have a more fleshed out plan, and we start talking about which of you guys might want to come participate.

DR. BOREMAN: There is quite a bit of experience with underwater video and camera work out of Woods Hole at UMass Dartmouth. They have been doing it for years, looking at scallop densities; and Woods Hole Oceanographic, in cooperation with the Northeast Center, just developed a system called Hab Cam, I think they call it.

You might want to just touch base with them to see availability for using it. You have the Charleston NOAA Lab here; and my understanding is they're stilling doing work with AUVs, automated underwater vehicles, that could just sail through these areas and take a series of pictures for you.

DR. REICHERT: To that point; we had a Deepwater Snapper Grouper Monitoring Workshop a couple weeks back. We're looking at video cameras on longline gear, and there is some experience in the Gulf of Mexico on that. We are trying to develop that, too. That may be a tool that could be useful to that, too.

DR. BUCKEL: One more thing on the research; and this would be like for speckled hind or Warsaw that the numbers are so reduced now. Maybe a research project could be interviewing folks that were around in the fishery when those species were more abundant; if they have numbers where they used to catch large numbers of speckled hind or Warsaw during the known spawning times. That might give some guidance on where to look for the smaller numbers that are out there now.

DR. BARBIERI: Gregg, we can discuss some more of this offline, but FWRI is working with University of South Florida, the College of Marine Sciences and the Center for Ocean Technology in developing some of those mobile underwater video systems that are pretty sophisticated, working with Steve Murawski.

I think that a lot of that interest that came from him was really relative to what John Boreman brought up; that he came from that area of the country, and he said there is a lot of underwater monitoring devices being used. The Center for Ocean Technology has this group of engineers that are like gadget geeks that put together a bunch of very good stuff that is really helpful.

I would be glad to – we got actually a grant funded through NFWF, the National Fish and Wildlife Foundation, for development of a couple of these vehicles and are conducting some preliminary surveys along the West Florida Shelf. We're going to have some preliminary data, and you can attach all sorts of – it is almost like a mobile ocean-observing system type of setup.

It is going to have to be refined over time. That is the whole idea is to test it and see what works and what doesn't, but this might be something that would help development of that and help you guys with data collection.

DR. SEDBERRY: Just to follow up on that little bit; physical oceanographers have a lot of these autonomous vehicles out there. We've been able to convince a few of them, anyway, or at least the Skidaway Institute of Oceanography to add acoustic receivers, Vemco acoustic receivers onto their AUV, so they can listen to fish that has been tagged acoustically.

But they can put other kinds of passive receivers on those to list to fish making spawning noises; and Todd Kellison I think has done a little bit of that. The regional Ocean Observing Association, SECOORA for our region, needs to be convinced that the fish in the biological parts of this stuff is really important; it connects to the physics. They really are interested in the physics, but we need to make better biological connections. Their meeting is coming up in Jacksonville in May. I can't remember the exact dates, but I'll be there.

MR. WAUGH: That is a good point. Yes, Roger sits on some of those groups, and he has been working over the years to get fish into their minds. It is a challenge, but he is making some headway, I think.

DR. SEDBERRY: It is a challenge; I've been doing it, too. Roger and I have been at most of the meetings, and it is a challenge.

DR. BARBIERI: Okay, any additional comments, questions or suggestions for Gregg? Gregg, I think that will get you started; and we look forward to seeing an update on this in October and hopefully we'll be able to provide more specific recommendations at that point as well. With that, we complete our Agenda Item 15.

Moving right along to Agenda Item 16; NMFS stock status determination process; I am not sure, before the SERO presentation, if John Carmichael can give us just a little introduction. Of course, all of this is described in your overview document summary, but it will be good to get a verbal from JC on this agenda topic.

MR. CARMICHAEL: Mike Larkin will be giving the presentation, so I'll just check in and see; Mike, are you here? Yes, we hear you. A quick overview, some questions arose about the general process of stock status determinations, particularly what are the steps, what information is included, where does the final word lie essentially? We have assessments done through SEDAR, and then you have recommendations that are made by the SSC, and then you have the agency level determinations of stock status.

Let's just say, for example, if you do a benchmark of a species and it is found to be overfished and overfishing, you have an assessment which provides that outcome. The SSC accepts that assessment and you give a stock status recommendation to the council. Then that ultimately results in the agency writing a letter to the council that says this stock is overfished and overfishing, and it usually goes in that order.

Then the agency also as part of their regular reports to Congress – and these are done quarterly – they provide reports on stock status information as well. The impetus behind this – though the discussion is much more general, but the impetus was gag where the recommendation that came to the council was different than what had come from the SSC. In that case it came down to looking at status sort of now with management that is in place and holding things below an ABC versus the SSC giving a recommendation based on the terminal year of an assessment.

That is sort of another direction that some clarification we were thinking is necessary is this idea of you give a recommendation from an assessment, you are usually looking at what was the status at the end of that assessment? That is what it provides.

The managers a lot of times in the agency are looking at, well, what is the status likely to be now? In some cases that could be several years later. We just asked for this presentation to at least get everyone on equal footing in terms of what the process is and the role that all the different folks play. I think with that we can turn it over to Mike.

DR. LARKIN: -- have stocks that are no longer overfishing and no longer overfished. As we get closer to four for each stock, you know this didn't actually go up. You see it is done quite well. We're down to 382.5 when we first started tracking it in 2001 and now we're almost up to 750 there in 2015. That was the quick summary of the stock status determination.

Now I know there was a request to provide more details on the gag grouper and gag assessment. This is just going to focus on the overfishing status, because the recent assessment, the overfished for something like gag, it was – before it was not overfished and the new assessment still has it is not overfished.

I'm going to provide some details here in that recent status determination. First, I'll go into what is defined in the FMP in this slide here. A stock is subject to overfishing if the fish mortality rate exceeds the maximum fishing mortality threshold at MSMT. MSMT is the rate that fishing mortality rate that produces maximum sustainable yield.

Typically I know you guys know this a lot better than I do, but typically NORS is a three-year average of that to compare to MSMT due to the uncertainty in determining the terminal year of F. Now if you go to the next slide; now that we've talked about defining the FMP, so now the stock status of South Atlantic gag, it was recently assessed in that SEDAR 10 update, which was completed in April 2014.

Then you folks accepted the assessment as best scientific information available in April 2014. The stock status determination, the memo was signed – to go through the steps I was talking about earlier. In September of 2014, it was signed by the Assistant Administrator there. It was determined to be not subject to overfishing.

Now if you go to the next slide I will provide more details to determine why that was not determined to be overfishing. Anyway, you can see where the three-year average of the fish mortality rate; and that one did in fact support that the stock is experiencing overfishing; but the actual fishing mortality rate of the terminal year, 2012, supported a determination of not subject to overfishing.

The SSC examined other non-FMP criteria and discussed how the 2013 South Atlantic gag landings were less than the OFL. Now I guess I'm jumping ahead – yes, I showed you that talk yesterday where I showed the 2014 landings for gag in both the commercial and recreational. Currently looking at those, they are still below the OFL.

But actually gag hasn't been specified in the FMP yet where you look at to determine overfishing on years when there is not an assessment; then you can look at the landings relative to the OFL.

Currently there is Regulatory Amendment 22, which should be completed by some time mid to the end of the summer by the council; and that will define that you can determine overfishing by landings relative to the OFL.

But I guess I'm getting a little ahead, but currently the preliminary landings we had for 2014 are also supporting the fact that overfishing is not occurring; because the 2014 as well as the 2013 landings did not exceed the OFL. Really, those two factors listed Number 2 and 3 in this case were deemed better indicators of current overfishing status, so that is why they got determination of not subject to overfishing; and that is why that was recommended. I think that is it, so I'm willing to address any questions,

DR. REICHERT: Thank you, Mike, I appreciate that clarification. I am just thinking we are using the stock status for our ABC recommendations. If there is a change relative to when we discussed the assessment, how would that possibly affect our ABC recommendations?

DR. LARKIN: I got you; let me think about that. You guys were making it right out to the end of an assessment in your ABC recommendations. Those can be pretty consistent throughout once they are set. They come out of the assessment, they go into an amendment, and then they are set in terms of the ABC.

When I talk about like for gag, when Regulatory Amendment 22 is completed, we're just going to look at those relative to the OFL. Anyway, I guess what I'm getting at is you guys only set those right after an assessment, so they'll be pretty much set until the next assessment. So even though the stock status; let's say I find out two years down the road the landings are below the OFL, so I determine it is not determined to be overfishing; but as far as I know, you guys are not going to revisit right away the ABC, right? You just wait until next assessment before you revisit that; if I understand it correctly.

MR. CARMICHAEL: Well, yes, that is the case, and it does sort of – if you carry this argument through, then you can sort of see us going to if the management is proper and you end the overfishing, then a year in the management goes in; then that next year, technically you would say if the SSC were to reevaluate, they would apply that stock with a different status determination on the ABC Control Rule; but that is really not how it operates.

They apply the conditions that existed at the end of that assessment, basically. There is a time component related to the terminal year. That is really not explicit, I suppose. If we look at mutton, the statement in the mutton table is the stock overfished, the stock overfishing. One first step is maybe to say based on the terminal year of X; the stock is overfished or overfishing. Then we consider if management goes in place and it ends overfishing, how might that lead to the SSC considering control rules, and thus ABC?

DR. BOREMAN: I'm still a little confused here. Is the argument that the SSC made a status recommendation based on a three-year average of F compared to Fmsy, and yet the agency turned around and said, no, we'll just use the last year estimate of that? I'm a little bit dazed by that, because there is a reason why we're using a three-year running average.

My guess was because it is a more stable estimate of fishing mortality than just the last year, the terminal year in the assessment. I'm trying to formulate a question here without insulting

anybody; because if I didn't know any better, and I probably do, and I trust the agency knows what they're doing; but if I was on the outside looking in, I'd say there is some gamesmanship going on here with the FSSI, trying to get a species delisted off the overfishing list, subject to overfishing by just taking the last year and not the recommendation of the SSC, which I think is probably a stronger basis for the three-year average. I guess that was based on just because of the variability and the instability in the estimates of the fishing mortality rate. Just my two cents in this, I don't know if I stirred a nest of hornets or not.

DR. LARKIN: I hear what you're saying; but when I dug into the SSC notes, it was clear that you guys discussed other options like the landings in 2013 relative to the OFL, as well as future predicted landings. I guess the message we got down here in SERO was that you guys – I guess it was mentioned that you guys did not expect it to be experiencing overfishing.

In previous years, but 2012, it looked like the trend looked like it was going down, in terms of overfishing was going down, as well as other landings relative to the OFL, so you add those together and that is how we got the status determination for not experiencing overfishing. That is what we pulled out of it and used.

DR. ERRIGO: I remember the discussions and the report. I took all the notes and if you would like clarification or a reminder of the conversation, I would be more than happy to. What was going on, there was a lot of discussion I remember on that very particular point about what should the status determination of gag be.

In the end it was determined that you needed to make a status determination based on where gag was at the terminal year of the assessment; but that going in terms of what would the council have to do in order to address the status determination of overfishing, it was more of it doesn't look like the council would have to take any further action, because due to the fact that the terminal year showed F below Fmsy.

Then the preliminary landings' information that we had showed below the ACL, we could probably say that the council has already addressed the overfishing issue in some capacity. But it was clear the SSC consensus was overfishing was occurring. There were people who were hoping for that not to be the case; but that was certainly what was decided on in the end. It was quite a lot of discussion about what to do about it; it was a lot of going around and round.

DR. BARBIERI: Mike Larkin; during that same SSC meeting – I mean if I follow your rationale here, you also reversed the overfishing determination for snowy grouper that the SSC provided.

DR. LARKIN: Snowy grouper; that one we looked into a lot closer and you're right. Let me look at my notes here for snowy grouper here. That one I guess was the opposite, right, the last year in the assessment in 2012 was overfishing; but then when we dug into those landings – the SSC dug in the landings and there was like Wave 3 of May/June, there were extremely high landings in Monroe County in 2012.

In fact, I even have a little quote here. This might even have been from you, but the Marine Recreational Information Program revealed an elevated spike in one of the wave of landings that might be an effect of sampling rather than fishing effort. I guess to go back to – you know, if we misinterpreted the issue where we made determinations that you guys may not agree with; but I

do want to point out, with current amendments like Regulatory Amendment 22 and Regulatory Amendment 20; we look at the current landings as well, so once those amendments in place; then we'll also be able to look at the landings relative to the OFL.

I guess I can make that argument like for gag. It looks like they're currently not overfishing based on the 2013 and 2014 landings to the OFL. You can make the same argument for snowy grouper. I guess we could argue that we didn't correctly interpret the SSC's determination; but if you look at more recent landings like 2012 and 2014, they would also support our determination that both are not experiencing overfishing. I don't know if I answered your question, Luiz. I guess I'm just trying to look ahead here; but I apologize if we actually made a choice based on the notes instead of currently following the SSC's recommendation.

MR. CARMICHAEL: The SSC discussed these in April 2014, if you want to pull up your old reports. You had gag and snowy grouper at the same time. There was a lot of discussion about the geometric mean versus the terminal year. Your past has been to use the geometric mean because of terminal year uncertainty and all the things that go into that.

However, in these stocks, there was discussion, because depending on whether you chose one or the other, the status of one or the other stocks was going to change because of the terminal year of gag was not overfishing. The terminal year of snowy was overfishing. The average of gag was overfishing; the average of snowy grouper was not overfishing.

There are things going on there. You comment on this in the stock status review for gag and you said overfishing is occurring. It says after considering a plot of F over Fmsy with confidence intervals from the MCB runs, a large amount of uncertainty in values of F coupled with the fact there is a high degree of certainty that F rates are not lower than they are has caused the SSC to recommend using the geometric mean F over the last three years for stock status.

The SSC wants to note that the regulatory closure in 2012 may have prevented overfishing from occurring. You commented there was a chance it might have not been occurring in 2012, but the reason you gave the recommendation of it being overfishing really was calling on a lot of the uncertainty.

I think in a lot of areas there is a lot more discussion given of things like retrospective patterns. We may think right now a stock is not overfishing; and we do an assessment in five years, we look back and realize it was overfishing. We sort of always thought that is why we give status based on the assessment that you have, not what looks like happened this year, because we often know even the terminal year can change.

We just looked at mutton snapper. We've had a huge change in the perceptions of productivity of that stock and probably some changes in the terminal year fishing mortality now from what we might have thought they were at the time that last assessment is done. Because of those things, that is one of the reasons that we wanted to get this issue before you because there is a lot going on in here.

DR. BOREMAN: To that point; what John just mentioned is how we handle it in the northeast – I think I can speak for the New England Council, too, because we both work with the same Regional Office; but status determinations are not changed until we have a new assessment in

hand. There is a reason for that because landings are landings, but you have to put them in context of stock biomass and all the other jazz that go with them.

I remember like for black sea bass and for summer flounder, we were doing a lot of hand-wringing and can't wait for the next assessment to come out, because we knew what the assessment was going to say; that they can take them off the overfishing list; but we still had to wait for the assessment to be done and not just rely on last year's landings.

DR. LARKIN: I feel like two different things – for overfished, yes, I totally agree; but I mean if you are done with overfishing, you can look at the OFL determined from the assessment, right, so you can look at future landings. I totally agree with overfished, but we do have a policy where we determine overfishing based on the OFL that came out of the recent assessment.

DR. BOREMAN: Yes; but we go back to the point about you use the geometric mean or the last year's landings. What is a more certain estimate of the character of the fishing mortality rate than the current year?

DR. LARKIN: But that doesn't issue like is there a trend, right; it is showing an average of the last three years. Another thing to consider, you know, is there a trend or is it stable? Anyway, where is seemed like with gag there was a trend with it going down; so that's another issue there.

MR. CARMICHAEL: Our track record on gag wasn't all that good when you looked back at the prior assessment and that is sort of where the SSC was coming in with the uncertainty.

DR. DUVAL: As someone who is on the receiving end of these determinations, who makes a determination, then? Is it the SSC or is it the agency?

DR. LARKIN: Well, ultimately it is the secretary. I mean the SSC makes recommendations; but to get back to my little talk here, the secretary would; but then they delegate it to the assistant administrator. That is who ultimately makes the determination.

DR. DUVAL: Just to follow-up, because the council takes action as quickly as we can upon receiving a determination from the SSC regarding the status of the stock after we receive an assessment or an update. This is a very informative presentation for me. It is also a little bit concerning with regard to does it throw another delay into our ability to take action quickly?

DR. REICHERT: And if the overfishing status changes after a couple of years, then I can follow the ABC rationale. If the status changes shortly after the assessment, that affects our ABC recommendations to the council that the council cannot go above, so I'm going back to the first remark I made; what affect that has on our ABC recommendation. I'm still a little uncertain in terms of where then the SSC's role is in terms of our ABC determination.

MR. CARMICHAEL: I just wanted to comment on the timing. Their clock is about ending overfishing and ending overfished, and they actually start though when we get a letter from the Regional Administrator and not when you get your SSC report is my recollection of how – you know, remembering back to like red snapper, the SSC made a recommendation at its October meeting, I think it was like during the December meeting that the council received a letter from the Regional Administrator that said the stock is overfished and overfishing.

Then that says you have two years or whatever it is to develop your plan to fix the overfished. That is the timing. Now this does create the quandary if the status were to change, like, for example, in gag; does this mean the SSC should reconsider its ABC recommendation in light of the agency saying it is not overfishing? I think that is maybe a question for the SSC. We'll start being circular.

DR. VAUGHAN: Yes, the calculation that we go through for the ABC is directly impacted as to – I forget whether it is Type 2 or Type 3 – yes, Type 3, whether you give it 2.5 percent or 5 percent or whatever it works out to be; that is directly impacting.

MR. CARMICHAEL: With mutton before us, the SSC I suppose could say this is our recommendation; and when the agency comes back to us and tells us what the status is, we'll finish the ABC Control Rule and give you an ABC. Is that the way out of the quandary?

DR. BARBIERI: Yes; that might be the way to resolve it is we wait until the stock status determination is finalized, until we can at our next meeting or two actually apply a control rule and make recommendations of yield streams for management purposes. According to our ABC Control Rule, which is approved by the council and I imagine by the Secretary of Commerce as well, we can only really follow that rule explicitly if we have a determination, a final stock status determination.

DR. BOREMAN: Yes; we ran into that problem with dogfish and it wasn't the SSC that made the status determination. We recommended that dogfish no longer be considered overfished and overfishing going on; but the council had to wait for a letter from the Regional Administrator before that status changed, just as much as the letter is sent when the stock is in trouble, have to wait for an affirmation from the Regional Office when the stock is out of trouble.

We were wringing our hands. I believe this is like six years ago; so I believe we gave the council two ABCs. One if the status does officially change, then this is the level you can fish; but until it changes, we were stuck. In talking with the Regional Counsel; he said, no, you are stuck with the status until the status is officially changed, and your recommendations should be based on the current status of the stock as determined by the Regional Administrator.

DR. BARBIERI: There were I think a lot of folks here on this side that may have raised their hands when we were talking, so I'm not sure if I'm capturing everybody. Any additional input or comments? It does generate another wrinkle or complication; but I think that the only way that we can actually apply our control rule, as it is listed in an approved regulatory amendment, is to have that final stock status determination; because otherwise the yield streams that come out of our projections may or may not actually be correct.

MR. CARMICHAEL: I guess if I carry this through; does this mean considering the first presentation we saw where jacks were at 150 percent of their commercial ACL, and I don't remember on the recreational; but if they were to end up being over their OFL – well, OFL is unknown.

I'm trying to figure if landings were high on jacks; will they be declared overfishing by the agency. But if OFL is unknown, then they couldn't be declared overfishing. Then if that applies to speckled hind and Warsaw grouper, those two are now listed as overfishing. Should they no

longer be considered overfishing because we don't know what OFL is and the ACL is zero? It is like a slippery slope.

DR. BOREMAN: Just trying to figure a way out of this conundrum; one thing we may want to think about is if we go forward with a recommendation on stock status and we're overruled – which is happening because it is not our call it is the; call of the assistant administrator – then I think the council maybe should remand the ABC back to the SSC saying, no, the stock status has now been changed, please give us a new ABC based on the updated stock status; so it would be grounds for a remand to the SSC. You can do that by webinar and not have to wait for a meeting or something.

DR. BARBIERI: I think that is a good suggestion, Mike, we might want to capture that. We can have some additional input or discussion from the committee, but I think that is a good way that we could go to say, okay, if we are overruled, then that assessment comes back to the SSC for reevaluation of the ABC Control Rule and your projections are actually generated that provide the corrected yield streams for ABC and OFL. Okay, any additional comments or questions?

DR. LARKIN: Keep in mind, maybe as we talked about earlier a slippery slope, because with these new stocks, as they get put in the FMP, we can compare the landings relative to the OFL; so that could change every year. I'm just speculating here; but you certainly could have a stock that landings are really high one year, so they exceed the OFL so it is experiencing overfishing. Then the next year the landings are low; they are below the OFL. So just something to keep in mind and that could potentially change every single year.

DR. REICHERT: I think that may be exactly the point of the whole conundrum that John and others brought up is so what is the role of the SSC, or at what point are we recommending a different ABC because the stock status is changing? If this is just something for the – I forgot the acronym. Yes, thank you – then I don't think it affects us too much, because our recommendation stands. If it goes further in terms of an overall status recommendation, then it affects the ABC.

DR. BOREMAN: We've got to remember our job is to provide an ABC that is based on a buffer between that ABC level and the OFL; and one of the objectives, at least in my mind, is to stabilize the fishery. If we are in a situation where every year it is going to be above OFL, below OFL, and so on; well, that is a clue that probably our buffer is not big enough between the OFL and the ABC.

You don't want to kick in accountability measures every other year; or after this happens after four years, I guess the National Standard 1 or 2 says you've got to revisit the whole OFL, ABC determination. Our job is to make sure we don't go into a whipsaw type of relationship between the catch and the OFL.

DR. ERRIGO: If landings are like on a yearly basis going over the OFL, which they are not now because our accountability measures are kicking in – we're going over our ACL and our ABC. But if we're going over the OFL and the ABC is being calculated based on our P-star and on the assessment, and we think we did a very good job of calculating the ABC, but we're still going over the OFL; perhaps then it is a problem of tracking landings and things like that and the buffer needs to be between ACL and ABC to account for the uncertainty in landings and not the

scientific uncertainty that the ABC accounts for. But I don't think we've had an issue of going over the OFL in any of our current assessed fisheries for a while now. This would be if you go over the OFL, you're overfishing and not the ABC.

DR. BARBIERI: This may be something for us to discuss. I think we have a presentation scheduled for tomorrow morning. Wesley Patrick from Headquarters is going to be giving an overview of proposed NS-1 rule changes and have an idea of how they are handling it. There has to be some kind of internal agency-wide consistency.

This idea of actually measuring the exploitation status based on landings can become real problematic; and I can see stakeholders coming back and suggesting stock status changes just based on what is being landed and not really based on stock assessment determination. It is just a very complex issue.

MR. CARMICHAEL: The gag example, as Mike showed, it was the combination of the terminal year estimate of the assessment and the 2013 landings. That illustrates the difference between what you said and what the agency determined. You recommended the three-year average; they chose the terminal year with being informed by the landings and T plus 1.

DR. BELCHER: But isn't some of that governed by how we're setting our ABCs, if we can react and do it annually? I always thought that part of this was when we were doing our assessed P-star approaches; we were looking at that probability over a data set stream. It just wasn't probability of P-stars is for individual years.

We were looking at it as aggregated, whether it was five years of landings data or however. If you're dealing with a three-year average, it is kind of accounting for the fact that we know there is going to be natural fluctuations in the landings. We're doing the best we can; but unless we're doing annual adjustments, I don't see how you can be as reactive to keep looking at terminal years to help make your adjustment.

I mean as quick as you put the stamp on it saying it is overfished/overfishing; two months from now it might come back that it's not. Can we be proactive enough to do anything to change that fact? We're trying to do the best with the information we have at hand and put something forward that we're not constantly stopping, starting, stopping, starting and resetting levels.

DR. ERRIGO: In terms of issues with work flow; I can't imagine recalculating ABCs in between assessments because landings have changed. That would mean rerunning projections for all stocks which have had a status determination; and that is not trivial especially if several years have gone by.

There is a lot of information that needed to be collected and then the projections have to be rerun. It could be in the middle of a bunch of assessments that are currently going on, so I don't know how quickly those would be able to be done.

I can't imagine that could happen. I can only see ABC values being recalculated based on changes in status during assessment periods. I just don't see us having the capacity, the manpower. We are already trying to push through as many assessments as we can.

DR. LARKIN: Then the regional side – you know, you've got to update the ABC, but then on our side update an amendment to reflect those ABCs and the ACLs that come out of it, so, yes, it can be a lot of work.

DR. BELCHER: Well, and again you go back to the infancy of when we were doing P-star approaches and coming up with that probability; the idea of the complexity of calculating if you want a 30 percent probability of overfishing for a five-year time period and you look at it as individual ABCs within the years; that multiplicative issue that goes on between them, you can't guarantee.

You could be at 0.25 one year, still wanting an overall 0.3 for that time series, and something else happens, and you're constantly having to readjust to keep it at 0.3, and it is just not feasibly doable. There are too many moving parts to calculate that. What if we're over this year, then what happens to the next year? What if we're under; what happens in the next one? There is a lot that goes on that makes it difficult for anybody to predict what the status is going to be year to year.

DR. BARBIERI: Going back to our overview document; there is no real action required here. I think this is a point of clarification for the committee and for the council. We're going to have some additional time to think about this and discuss tomorrow some more if we have some extra time.

Then, of course, as we prepare our report, we're going to have a presentation of our report to the council. Just hearing some comments from Vice-Chairman Duval, I imagine that the council will need some clarification on this so it can be on track for managing stocks within reasonable time frames and receiving SSC advice with a reasonable amount of confidence.

We'll just, for now, capture those notes and we'll continue elaborating in our report. That completes what we had originally scheduled for today. Fortunately, that gives us time to have our SERFS presentation that Marcel could not give yesterday. Since he won't be able to join us tomorrow, this is great news to get the presentation from him today.

DR. REICHERT: Thanks for giving me the opportunity to update you. I've given these updates in the last couple of years. The first couple of slides are very similar to the last couple of years, but I would like to include them for those of you new and rather unfamiliar with the reef fish survey. The Southeast Reef Fish Survey, or SERFS, consists of the MARMAP program, the SEAMAP Reef Fish Program and SEFIS.

MARMAP has been in place for quite a long time, since 1972, SEAMAP since 1986, and SEFIS came on board in 2010. The update I'm going to give today is based on the Chevron trap, which is our current primary gear. It has been consistently used since the nineties. We generally deploy that to depths to about 100 meters; we sometimes deploy them a little deeper.

Soak time is about 90 minutes; and they are baited traps. Since 2010 we have one to three video cameras on each trap, and you can see them in the red circles. The red arrows indicate the direction the cameras are pointing. The little yellow arrow is an example of a camera that we have in the trap; and we are using that to look at behavior of fish inside the trap. It is currently a PhD student who is looking at those videos and doing some analysis.

Our sampling design, we currently have over 3,800 sampling stations with known live-bottom habitat. On an annual basis we select about 1,500 to 2,000; and the distance between those sampling stations is at least 200 meters when we are selecting them. For logistical reasons, generally MARMAP/SEAMAP programs out at the South Carolina DNR are sampling off of North Carolina, South Carolina; and the SEFIS program out of Beaufort, North Carolina, is using the RV Savannah in Skidaway, and they are mostly sampling Georgia and Florida.

We at South Carolina DNR are processing the life history samples. SEFIS is mostly responsible for the video processing. In this overview I will only present the Chevron trap data. We are working on one combined data set, and most of the data will be or are available on the SEAMAP Website, so they can be publicly queried and used by people who are interested.

The map is an overview of the 2014 sampling universe. In blue are the short bottom longline stations that we'll talk a little bit more about in a little bit. This is an overview of the increase in effort. Since SEAMAP and SEFIS came online, we more than doubled our annual samples from about 600, 700 to 1,100 to 1,500 samples that includes the reconnaissance trap sets.

These pictures are of the three vessels that we are using, the Palmetto, the Savannah, and the NOAA Vessel Pisces. I want to remind you that due to funding considerations in 2012, we halted all the longline surveys. Fortunately, last year we got some additional funding through SEAMAP; and in July we resumed the short bottom longline survey and we are continuing that this year.

A brief overview of the 2014 data; the map is the 2014 sampling stations. Each dot on the map is a sampling station sampled. Note that some of them are so close that they are kind of overlapping a little bit. We deployed over 1,500 traps; over a thousand we're monitoring; and we added about a little over 450 reconnaissance sites. All the traps have cameras on them.

We also had about 700 other gear deployments, which includes hook and line and CTD deployments. We captured 62 species, close to 41,000 fish that were identified, weighed, and measured. We kept for life history studies mostly age-and-growth studies, but also DNA and stomach contents, about 39 species, close to 9,500 fish.

We completed the sampling of red porgy, vermilion, gray triggerfish, and red snapper for diet studies, and we are currently looking at other grouper; squirrel fish, blueline tilefish, black sea bass, and white grunt. That information hopefully can be used for ecosystem-based fisheries management.

This is an overview of the species that we collected, the most common species in 2014. The list doesn't generally change a whole lot from year to year. Black sea bass, tomtate, and red porgy are the most abundant species in our trap catches. But what I wanted to indicate is – and I think I mentioned it last year – that red snapper is still the ninth – at the moment the ninth most abundant species in our traps and continues to increase in numbers of fish collected.

White grunt, we collected three times the number of white grunt this year than we did last year. We had a little bit of an increase in knobbed porgy and red porgy, also. We had a slight increase in blueline tilefish, but the numbers of blueline tilefish caught are still relatively small. As I indicated last year, this is a list of the species that we collect life history samples from.

Again, black sea bass, red porgy, white grunt, vermilion snapper, and gray triggerfish are what we call our high-volume species. Black sea bass currently is the only species that we randomly select a subsample of the total number of fish caught. All other species, we work up every single individual that we catch in the traps.

I highlighted the lionfish with 11 lionfish. Every year we increase the number of lionfish that are caught in the Chevron traps, still a relatively low number, because they generally don't go into the traps; but they actually now show up in the list of most abundant species in the traps. What I will do in the next slide is just give an overview of the CPUE.

As a reminder, these are the Chevron trap data only selected species' depth range. We only included the depths over which about 95 percent of the specimens are caught, to eliminate a number of zero catches. The time series is 1990 through 2014; and as every year please remember that 1990 was the year after Hugo, so that may affect that first year.

The CPUE is in the trap for a fish per trap hour. You will see two lines in each graph. One is the delta-GLM standardized and the other line is the nominal CPUE. They are all normalized to the long-term average; and the error bars are plus or minus one standard error. I want to remind everyone of some caveats.

Of course, this is the summary overview and not an update of the stock status. I always like to make that clear, and the constraints, stratification, units, and models of the CPUE may be different or I can say are different than those used in SEDAR stock assessments. Many species have not been assessed or updated through the SEDAR process, so not all trends and analyses have been discussed in the SEDAR workshops.

The species I'm going to show – some species' names are in green, and those are the species that we generally don't take routine life history samples from. Black sea bass, we saw a decrease in our CPUE. I don't think that is very surprising because of the increase in catches; but we saw a little bit of a decline in the CPUE for black sea bass.

Bank sea bass, the declining trend in the last couple of years continued in 2014. Scamp, I've mentioned before that currently we're looking at levels that are relatively low relative to the rest of our time series. A couple of years back we thought we saw a little bit of an uptick, but unfortunately that did not continue.

Red grouper, we discussed red grouper the other day. Since 2003 we've seen a decline in the CPUE in red grouper. We collect red grouper regularly in traps. It is obviously not one of our most abundant species, but it is a species that we feel is not avoiding the traps. Snowy grouper; gag; we don't catch gag in very large numbers, and that was the reason why the Chevron trap index for gag was not used in SEDAR 10 due to low sample size.

Vermilion snapper, we are still looking at levels that are kind of the lowest CPUEs in our time series. Red snapper, increase; we've seen a steady increase in the last couple of years. We've seen the red snapper catches increase throughout our sample area, not just in what is traditionally called the center of distribution off of Florida; so that is an encouraging sign. But as I said, it is not a stock status or stock assessment update, just our trends.

Red porgy, declining trend in the last couple of years; knobbed porgy, a gradual decline, it hasn't changed. Our CPUE levels are still lowest in our time series. Tomtate; white grunt, we've discussed white grunt on various occasions. They've been on and off the schedule also on various occasions. Synonymous, this is scup and longspine porgy, because they are relatively difficult to distinguish in the field. Because of identification uncertainty, we combined the two species, so the synonymous declining trend there.

Gray triggerfish, part of the SEDAR 41 assessment this year; this will be discussed in August. Then for this year our sampling season has started. SEFIS has just completed their first cruise. We had a short first cruise last week. We have three monitoring vessels; the Pisces entered the monitoring phase.

We are replacing the Canon cameras with Go Pros in deep-water housings, and we continue the hook-and-line studies, DNA sampling and others. We also will continue, not resume, continue the short bottom longline, and that hopefully will provide some information on snowy grouper. We are currently discussing to potentially resume the long bottom longline survey.

We are still looking into that possibility and discussed that with our partners. Of course, this is work that is done by many, many, many people. Wally Bubbly, Joey Ballinger, and Tracy Smart I would like to particularly acknowledge for providing these delta-GLM and nominal trends; and then, of course, all the MARMAP/SEAMAP/SEFIS staff, students, and the vessel crews both current and past. If you have any questions, let me know.

MR. HARTIG: What happened to the blueline slide?

DR. REICHERT: I have a blueline slide as an extra slide that I can show you. It is not on the PDF. I can show you the blueline here. I included the species that we have the highest catches for; and blueline tilefish, we catch both in the Chevron trap but also in the short bottom longline. Since we stopped the short bottom longline series; I did no longer include the short bottom longline survey because I didn't have any updated information on that.

MR. HARTIG: It was in the first presentation that I received. That was the only reason why I asked.

DR. REICHERT: The very first? That was a draft. I have them here; I have them available. That was, by the way, the short bottom longline. I don't think we had the Chevron trap blueline tilefish in there. The data is all there.

MR. BOWEN: Marcel, you made two references of avoiding the traps and you mentioned that the lionfish were avoiding; but then you also said that you didn't feel like red grouper were avoiding the traps, you were catching some of those. How do you determine what species avoid them and what species don't; how do you know that?

DR. REICHERT: Well, we have comparison with our video survey at the moment. Previously it was very difficult to say. For instance, lionfish is a prime example. We see them in a lot more videos. Also, prior to the video survey, we had still cameras on the traps. It gave us pictures to verify the bottom habitat, but also we saw the lionfish on the videos. It is also their behavior, in terms of how they catch the fish.

North Carolina; James Morris has done some work. I think he actually used live bait in cylinders and had a better catch rate of lionfish. I think that is part of it; they go after live bait rather than the dead menhaden that we are using. That is part of that. We are currently using that information from both the cameras and the trap catches.

MR. BOWEN: Follow-up if you will bear with me. My concern for me is more about the gag grouper than the lionfish. Are you documenting the numbers of fish that you're seeing on video versus the number of fish that do or do not go in the traps when it is pertinent to red grouper or gag grouper?

DR. REICHERT: Todd Kellison and Nate Bacheler's group, SEFIS, are analyzing the videos. We have that information and that will be used in upcoming stock assessments. That was a main reason why we started using that gear, to document potential changes in species' composition and the relationship between trap catches and what we can see on the videos. As with every gear, every gear has its selectivity and its pros and cons; but the combination of these two gears I think is a much stronger tool than any of these gears by themselves.

DR. BUCKEL: Marcel, you may have said this and I missed it; the standardizations, what were you standardizing to? They are standardizing for the latitude differences between years or were there other variables?

DR. REICHERT: The variables are depth, temperature, sea day, latitude; I think that's it.

DR. SCHUELLER: Yes; can you go back to the black sea bass slide? It is unusual to see a nominal and a standardized index be so far apart, especially – it looks odd, okay. The first part of the time series, they are closer together although the nominal isn't contained within the standardized, which you hope not to see; but then at the end of the time series it is drastically different. Can you speak to that?

DR. REICHERT: Joey Ballinger has actually looked at that. If you look at the red snapper graph, it is the other way around; and that is because of the disproportional increase of sampling off of Georgia and in particular Florida. That is a function of the increase in sampling density over time and where that is occurring.

DR. SCHUELLER: You can see this in the latitudinal factor of that?

DR. REICHERT: Yes; although the overall trend, Joey analyzed the overall trend in different areas and the overall trend was the same in the various areas. It just differs if you look at the entire region in terms of your nominal and standardized CPUE.

DR. SCHUELLER: That is good to know that the trend is the same just from an assessment standpoint. No assessment is going to handle a jump from 0.75 to 3 well in that. It would assume some other thing is going on and it would –

DR. REICHERT: Exactly, and I believe during the black sea bass update assessment; that was looked at from all kinds of different angles. Again, Joey Ballinger did a lot of different analyses to find out if there was an artifact or what caused that. I believe at that point there wasn't a single or a number of reasons or it can be explained by something that was happening in the

population. That was looked at extensively at the black sea bass update. John, if you can go to the red snapper slide.

Here you can see because the increasing sampling was occurring in particular off of Florida or disproportionately off of Florida; that is where you see the nominal CPUE being higher than the standardized CPUE, because you try to correct for that change in sampling locations. That is where the latitude in your delta-GLM comes into play. But as I said, these are our trends in our Chevron trap CPUE and not status update. As I said, I have a couple of other slides from some of the less abundant species if people are interested.

DR. BARBIERI: That would be good. Thanks again for this presentation. It is great that we get this annual update and have a refresher of the methodologies that are used and how the methodologies are changing over time. It is hard for us to keep up with that kind of stuff, so having you put the time to prepare the presentation and come give us a summary is really great. Unless there is any other business that we are interested in pursuing this afternoon, I think we are pretty much ready to recess for the day.

MR. CARMICHAEL: It is your choice. If you would like to do some other topics, we're scheduled to go longer. You could push it until after 5:00if you want to.

MR. CARMICHAEL: Do you want to do the hogfish, maybe?

DR. BARBIERI: Yes, Dustin, you have your slides? Keep in mind that these projections are based on the current stock status of hogfish.

MR. CARMICHAEL: Do we have a presentation?

DR. BARBIERI: Yes, he has a presentation, right? It is up in his room, because he was scheduled for tomorrow morning.

MR. CARMICHAEL: We could talk about triggers while he goes to do that, maybe.

DR. BARBIERI: Okay, while Dustin goes upstairs to get his hogfish projections presentation, Mike is going to move forward with Agenda Item 18; consideration of stock triggers or rumble strips. We are doing the rumble strips. Let me bring to your attention Attachment 23; Scientific Uncertainties Subcommittee Report.

DR. ERRIGO: This is actually background information from the Mid-Atlantic who has been discussing rumble strips and things of that nature. This came up at the last council meeting when we went over SEDAR 38 king mackerel. What happened was that was the one, if everyone recalls, where we had the three different recommendations for ABC depending on the level of recruitment that was used in the projections.

There were the high, medium, and low levels of recruitment for the projections for king mackerel. The high level was typically used for projections, which was for that assessment the average recruitment over the last five years of the time series. Then there was the low recruitment was the average over the – there was a period of really low recruitment that was averaged over and then the medium was between those two.

The council was interested in looking at, well, we will look at it and see where recruitment might be now and choose an ABC; and then as we move along, can we reevaluate? Like if recruitment goes up, can we look at data streams that are looking at recruitment and things like that?

If recruitment changes and we move up into a high recruitment time period, can we move into that other tier of ABC where the projections were for the high recruitment level. If recruitment plummets and we're suddenly in a situation where recruitment is really low, rather than continue with fishing at the medium recruitment rate, can we have the flexibility as we go along to monitor these different data sets and then move into that ABC level that was projected at the low recruitment rate?

That was something that was discussed and talked about. I know the SSC had discussed rumble strip approaches for a bunch of our stocks at I believe it was our last SSC meeting. Due to the fact that the council was interested in you guys talking about it in regards to king mackerel stock or in general, we decided to bring it up here. That is just the general background.

I know that the Mid-Atlantic has been talking about it. I don't know exactly where they're at in that process. I don't think they've gotten terribly far, but perhaps John Boreman might know more about where they are in that process.

Hopefully, the SSC can just talk a little bit more about the use of a rumble strip type approach here in terms of how often might you want to look at different stocks or different types of stock; what kind of data sets might you want to monitor or look at in terms of a rumble strip approach and how might we want to use that information as we move forward like in between assessments or for species that we don't have assessments for?

DR. BARBIERI: I remember John Boreman bringing this issue up last year or the year before and mentioning that the Mid-Atlantic Council's SSC had been adopting this approach or developing an approach. John, do you have some more details that you can share with the committee, please?

DR. BOREMAN: Yes, Brian Linton and Mike Wilberg have been working on this for the past six or eight months or so, basically looking at stocks that we currently develop P-stars for, because you can't do them for stocks that we don't have OFL estimates for at this point, which is in that the last paragraph talking about what we used to call Level 4 stocks or our catch-only stocks.

We find that in some of the stocks it works well. Summer flounder it works great; other stocks it doesn't. The principal reason is how we as a collective have gone about this is the idea is to develop a series of indices that you can track that don't take a lot of time to put together, like trawl CPUE or just area of the fishery or age structure; stuff that is easy to calculate – well, not age structure, but size structure of the stock.

Pull together these indices and then see how they track over time compared to indices of stock biomass or recruitment or whatever you want to track relative to the biological reference points. Then some of these indices, if they go above a certain percentile of the mean or below a certain percentile of the mean, then it doesn't trigger action as much as trigger additional investigation, which may result in a change in the ABC eventually, but not automatically to start with.

As a rumble strip does on the highway, it just wakes you up saying you better get back on the highway or figure out why your car is running off the road. I said like summer flounder we've developed a set of indices that seem to track pretty well. Looking back through history, they track pretty well with the indices of stock abundance. Other species there is no relationship.

We can't at this point come up with indices that do track abundance or we don't have very good measures of stock abundance in history. I would say of the seven or eight stocks that we do develop P-stars for, maybe four or so are at a point where we can develop a rumble strip approach, but the other four we just can't now.

Still a work in process; we keep promising the council we're going to come back with something. It is difficult to develop these approaches unless you have some reference that you have somewhat degree of certainty with in terms of indices of stock status that track well with what has happened to that stock in the past.

That is where we are. We are not as far along as we had hoped to be at this point. What we're doing as an SSC is moving forward with the stocks we can use them for. There is no reason we can't. We're using them in setting multi-year ABCs. Right now we're doing it in a qualitative fashion.

When we set a multi-year ABC, like we just set one for golden tilefish or just discussed it at our last meeting, we basically say that, all right, this coming year what we would like to look at is not an updated assessment. We don't need an updated assessment, but we want to see – right now the fishery for golden tilefish is concentrated in a couple of statistical areas.

We want to see if that fishery all of a sudden starts to expand to other parts of the coast; that is a cue that oh-oh, something is going on here. We want to look at the size structure of the catch, because right now the catch covers a whole range of sizes from very small, what they call kittens, up to huge tilefish; see if that market category has changed in the coming years; if it just starts favoring very small or very large.

We give basically that is the warning and that is going to be our qualitative rumble strip to cue us in that something may be going awry with the stock. But other than that, we're not requiring the centers to do an updated assessment every year like we have in the past. The whole idea again is to relieve the burden of having to do an updated assessment every year.

MR. HARTIG: John, I appreciate that detailed description of things that we can look at to use the rumble strip approach. I will give you a little bit of an update on the king mackerel. Within the assessment, we had those three levels of recruitment scenarios. Then you applied your P-star values to that, and you had three levels of catch that you could get out of that.

But then you went ahead and actually gave us a suggestion for an ACL as well. Going into that left some flexibility in the process, which was great; a flexibility that we can use even without having to go back to you. We have your recommendation so we can set our catch levels, which we haven't done yet. We're still working on that within the framework of what you've given us.

Subsequent to the assessment and this year in particular a huge year class entered the fishery. It was just as what we had tried to get the assessment analyst to buy into was that you are looking

at this lower productivity on this end; but you did the assessment in 2006 on the very highest year class and the one in this year at the very lowest. We convinced them to give us those different recruitment levels, so that worked.

Seeing this new year class now subsequent to that assessment gives us a little bit of flexibility to be able to change whatever catch level that we think should be used. But I think having said that as a manager, the middle is missing in that stock. We have quite a few large fish. Now we've got a lot of small fish, but the middle is missing. We want to get these small fish into the middle now.

You want to be a little bit cautious now to allow some of that escapement into the older ages into the spawning stock and of that nature; and so trying to explain that to fishermen sometimes is a little bit difficult. Very much appreciate what you have been able to do and buy into those three recruitment scenarios, because in mackerels in particular it was very important.

Then seeing the evidence of Age zeros in 2012 that weren't captured in the trawl survey, because they occurred much farther south than that survey; so all these things working together have created a situation that gives us a little better flexibility. Thank you.

DR. BARBIERI: Thank you for that, Ben. Oftentimes you remember that we make some recommendations of ABC yield streams going to the future; but given the level of uncertainty on the stock, we kind of request some monitoring or we usually phrase it that we get some report back from the Center or the Regional Office to give us an idea on how things are going so we can measure whether our recommendations are still applicable or not.

This is something else that could bring a level of objectivity, following those criteria that John Boreman described; and having these two councils actually working on it might bring some efficiency that I think would be a benefit to all of us.

MR. HARTIG: You mentioned the monitoring aspect of it, which is important. Peter Barile is here today and he has been monitoring the catches. We have one fish house in particular that puts the number of fish on each trip ticket, so you can go back and get an average weight from your catches, which helps tremendously to get an idea. He had updated all that information. Where was the last time we saw it, Peter?

DR. BARILE: Last month.

MR. HARTIG: Last month we saw that information, and it showed the predominance of the winter fishery were these smaller fish. It was very informative, helped us make that decision, and it was presented to the AP. It is information that we have been able to use. Now, we can't always get the TIP information that we want on a timely basis, but we're working on it.

DR. DUVAL: It seems like as a little bit of chicken and egg here. In order for you to provide us with potential advice regarding the use of rumble strips, perhaps we need to give you a few additional example species that you might be able to look into the information for? I don't know if Dr. Boreman has any comment on that.

I'm thinking about things like red grouper; just seeing the presentation that Marcel gave us, the public comment that we've had about significant concerns with regard to red grouper and the potential ineffectiveness of our current January through April spawning season closure, especially in the northern part of the range, so I don't know maybe a little comment on that.

MR. CARMICHAEL: I think we should look at the different situations between us and the Mid-Atlantic and how they ended up with this and how we may want to end up with this. I think like John said they were looking at really trying to do updates every year of every stock, and that is a lot.

They don't have as many stocks as we do, but they still – the Center dealing with New England and Mid-Atlantic, that is a lot of work load, so they go onto this as a way to maybe prioritize which ones really need to have an update versus which ones are going along pretty well. I think there is some benefit to us in terms of prioritizing what we assess for an update; but there may be some other ways to use the general concept of trying to get us some insight into many of our unassessed species.

I think maybe some sense from the council about what you would like to achieve with rumble strips could maybe help this group come up with some ideas how to get there; maybe kind of borrowing from it looks like the Mid-Atlantic approach is a subcommittee to get together and work on this and develop some ideas, which always seems to work a lot better than all of us sitting around the table on the microphones.

DR. BARBIERI: Of course, having John Boreman as an SSC member here and knowing that Mike Errigo is going to be focusing on that some; perhaps at a future meeting we can get an update on where we are in this process and have a little more detail to discuss more specifically. Dustin Addis is back and is going to give us a very brief overview of the hogfish projections.

We have a very short presentation. We have two attachments, Attachment 21 and 22. Attachment 21 is just to refresh your memory. The hogfish assessment was presented I believe last fall and then these projections that Dustin developed. Now, keep in mind that this was a benchmark assessment conducted with stock synthesis; and that the analyst who conducted this assessment actually got another job and left the Institute.

We are trying to sometimes reach out to him, and Dustin has done a great job kind of sifting through a whole bunch of files and codes and trying to touch base with Wade and getting the ball rolling on this. But let's see what he has to tell us about those projections; and then we have a number of specific action items that we're going to address afterwards.

MR. ADDIS: I want to say that Mike Murphy was instrumental in these runs. In fact, he probably carried most of the load so I wanted to mention him. You guys requested projections of hogfish biomass and to develop alternatives for rebuilding the Southeast Florida/Florida Keys stock. It is determined to be overfished and undergoing overfishing.

Preliminary projections from the assessment show that the stock can rebuild in 10 years under and F equals 0 scenario. We were asked to provide projection results based on Year 1 equals 2016 extending through 2026. The last year of the assessment was 2012, so we had to come up with interim landings between 2012 and 2016 where regulations would likely happen.

Recent catch data by fleet was generated for the commercial fleets of commercial spear, commercial hook and line as well as commercial traps; and two recreational fleets, recreational hook and line and recreational spear. The commercial fleets, we used FWRI trip tickets and the discard logbook program for discards.

For 2013 and 2014 we had complete data sets. We had to take the average of ’13 and ’14 for 2015. For the recreational side, MRIP was incomplete for 2014. We also used the Southeast Region Headboat Survey. We ended up taking two-year averages for ’14 and two-year averages for ’15. We used the base model configurations from the assessment.

We assume that the biology of the recruitment, the selectivity, and the relative apical Fs among fleets were the same as in the assessment from 2010 to 2012. Predicted fleet F allocations of these years were held to be constant. This was applied in the interim period and as well as through all of the projections.

Base model catch and forecast catches were in total dead fish, so the discards were included because he included them in the landings in the model. We had to tease those things apart to fulfill this request. The base model 2010 through 2012 fleet-specific exploitation rates were partitioned into these components.

We did that by the observed discards by fleet divided by the total biomass or numbers to get the fleet-specific discard exploitation rates. We take those fleet-specific discard exploitation rates and we subtract those from the total exploitation rates to get our landed or retained exploitation rates. These component exploitation rates were then multiplied by the stock abundance or biomass to calculate discards and retain catch in numbers and in weight.

All these projection analyses involve iterative searches to solve for annual scalars that are applied to these exploitations to match the target exploitation rate that we’re looking for such as F equals zero. We have F currents, which is our geometric mean rate for 2010 through 2012. We have 75 percent of Fmsy, Fmsy, and then we have our rebuilding scenarios which take place over ten years or seven years.

These are associated with probability of rebuilding of 50 percent as well as 72.5 percent. Here are the results. These are the fishing mortality rates applied. The F-0, as you can see, is 0.001. That includes discards that would happen during that scenario. We have an F current of 0.22; 75 percent of Fmsy is 0.104; Fmsy, 0.138.

For the rebuilding on the right, as you can see for the 72.5 percent P-rebuild, you notice the Fs are slightly declining over the time series. This is because we used the inverse Hessian to determine the exploitation rate each year at the cumulative probability of 0.275, which is the P-star. The probability of rebuilding 1 minus P-rebuild equals a P-star of 0.275.

In general, the standard errors got higher later in the projection, so the Fs declined slightly. Our spawning stock biomass estimates for these projections; the red line is the spawning stock biomass at MSY. You can see that for F-0 it rebuilds the stock in 2021; 75 percent of Fmsy rebuilds the stock in 2026; F current and Fmsy do not rebuild the stock by 2026. By definition the rebuilding 10 and rebuilding 7 schedules rebuild in the allotted time. This is annual stock biomass, it is very similar.

Retained yield; for the scenarios on the left, we show yields taking an initial drop; but as the stock abundance increases, they increase to around 200 to 300,000 pounds. The same goes for the retained yield for the rebuilding schedules on the right; yield between 100 and 250,000 pounds. Discards; as the stock abundance increases, discards also increase; but notice the scale retained yield. We're looking at 900,000 pounds and this scale is 25,000 pounds. It is a very small proportion of the catch. That's where we're at.

DR. BARBIERI: Before we go into our specific action items, any specific questions of clarification from the committee for Dustin?

MR. CARMICHAEL: I guess he knocked it out of the park.

DR. BARBIERI: Moving on to our action items; the committee is asked to review the hogfish projections and consider, one, do the projections represent the best scientific information available? To facilitate our decision, we are going to go with that same process that is there anybody who disagrees with this statement?

Seeing none; then our section action item, what are the projection uncertainties and how might they affect rebuilding efforts and strategies? Remember that in this request made by the council, the analysts were asked to provide different rebuilding strategies so the council can choose one of those; whether they want to go with the standard default 50 percent probability of overfishing, which is basically rebuilding at F rebuild; or if they want to go with a more conservative strategy with a higher probability of rebuilding the stock. Are there any concerns or issues that you would like to bring up?

DR. SCHUELLER: My only statement would be – and it has nothing to do about this other than caveat it into the documentation – to say that depending on what management decides between now and 2026, if selectivity changes, that is going to have an impact on the rebuilding time and could have implications on other things. That is a major caveat I think that should be in all projections.

DR. SMITH: Maybe somebody can clarify this for me; do we have any sort of mandate to estimate the probability of meeting the rebuilding targets, like it has to be over a certain probability?

DR. BARBIERI: The probability of rebuilding the stock – and I guess John Carmichael may correct me if I'm wrong – according to National Standard Guidelines is to rebuild with a 50 percent probability. That would be rebuilt at fishing at F rebuild; but the council can choose a more conservative rebuilding schedule if they so desire; but 50 percent is the minimum probability that can be used by the council to rebuild it in the desired timelines.

DR. SMITH: I suppose where I was going with that was that at least the graphs we were shown don't reflect the uncertainty in the projections; but, of course, if 50 percent is our goal, then that is the point estimating device, so moot point.

DR. BARBIERI: I just want to make a comment before we go to the third one. I think that Amy's suggestion is something that would help inform the council really of some of these caveats just so they have a better understanding. It helps to be a little more explicit about those

issues, and it is just a matter of documenting that in our little report. Moving on to the third one; does the SSC have any other guidance for the council on rebuilding strategies?

MR. CARMICHAEL: You may want to also point out the obvious uncertainty of recruitment. Recruitment may not be as estimated and that could affect performance and projections over time. If discard mortality were to change for some reason, discard rates perhaps were to change because discards are backed out of this, if regulations were to lead to a higher proportion of fish being discarded than was the case in the years used to separate it out; then your total yield would be higher than the total yield would be intended, what total yield you have intended.

DR. SCHUELLER: I guess I agree with you, John, that should be included. We tend to have sort of a list of things we always include in caveats for projections, which should all be included, including statements like projections are uncertain over the long term, i.e. longer than five years. Projections do include sources of uncertainty, but not all kinds of uncertainty.

For example, this doesn't include structural uncertainty. The recruitment aspect of it, the selectivity aspects of it, depending on what management decisions are made; that has an impact. Then also that the Baranov Catch Equation that relates F to landings assumes that mortality is occurring throughout the year; so if there are spatial changes in management, that again can have an uncertain impact.

DR. BARBIERI: Yes; and your earlier comment made me think about that standard set of caveats that you guys have developed that I think is good guidance for the council to understand that projections have assumptions that have to be made and that uncertainties are usually higher than for the retrospective period of the actual assessment.

No guidance for the council on rebuilding strategies? There are two options and they will have the opportunity to look at those and make their decision on how they want to rebuild the stock. Are there any other comments, questions, suggestions? Okay. Seeing none; I think now with five minutes or six minutes to spare we're going to be recessing for the day. We start tomorrow at 8:30 right here.

MR. CARMICHAEL: We may make some agenda shuffling; because Wes is reporting on the National Standards Revision, but he's out in California. He graciously agreed to squeeze this in between getting up and getting over to his next meeting. We need to do that at 10:00 o'clock our time, which will be 7:00 o'clock his time. Considering he is willing to get up in California at 7:00 o'clock and be on the webinar, we could probably accommodate him. We'll just do what we can do up until 10:00, and then we'll move on to this topic.

DR. BUCKEL: I would just like to point out that SEP Member Kurt Schnier was on the webinar yesterday morning at 5:00 a.m. Pacific Time when we started at 8:00; so just noted, and he was very alert, too.

(Whereupon, the meeting was recessed at 5:30 o'clock p.m., April 29, 2015.)

The Scientific and Statistical Committee of the South Atlantic Fishery Management Council reconvened in the Crowne Plaza Hotel, North Charleston, South Carolina, Thursday morning, April 30, 2015, at 8:30 o'clock a.m. and was called to order by Chairman Luiz Barbieri.

DR. BARBIERI: Are we ready? Apologies for us running a bit behind, but Chairman Hartig had some issue that he needed to discuss with us so we needed to caucus outside and discuss some of this stuff. We're going to be starting this morning with a look at our ABC Control Rule Workshop Report.

Pull up Attachment 24, and I think this is going to generate some interesting discussion. I don't know if John wants to give a little bit of an introduction on the ABC Control Rule Workshop Report and what our discussions before had been and how that aligned with where we wanted to go with this and the difference between that and where we ended up.

MR. CARMICHAEL: We had the workshop; I think we all remember that. We have a report and we want to get that wrapped up here, hopefully. I definitely think one of the issues was what we wish to accomplish. I think we thought some changes in the control rule, perhaps some better resolution for dealing with the assessed stocks than the things that we currently have in there, some perhaps better language to distinguish between the different levels.

Then as I recall at that last meeting and when we dealt with the next stock, we kind of realized that we still have a bit of that issue. I think that issue is still there. It didn't come up a whole lot in dealing with mutton, but I think there were things within the mutton snapper; thinking about the lack of fit, which Steve pointed out, which we kind of put into the uncertainty tier, but it is not really real clear in there.

It seems to me in terms of the primary goal of that control rule for assessed stocks being to really evaluate the assessments; it doesn't give us a lot of resolution. I liked what John had mentioned the other day at the Mid-Atlantic where they had gone away from this idea of numbered tiers because in all these things it always seems to be the case.

Once you start putting numbers and levels on things, they do start developing a hierarchy and people want to get to the higher level, and that carries expectations. In this case it carries you get to a higher level, you should have a tighter buffer because you know more. But we know in reality, when you go from a landings' base system to something with an actual assessment, quite the opposite could happen. I think we do need to deal with some of those issues in the control rule, still. I'm just not sure how we compel the discussion and get there.

DR. BARBIERI: Right; and one thing that I wanted to add to that, you remember, I think it was the king mackerel assessment, and how we were looking at the – I think it was Tier 4 or 4th dimension of our ABC Control Rule and talking about the risk factors and we realized that the report, the suitability analysis we disagreed with, but we did not have any flexibility to change that to something that we felt more comfortable with.

There were other items, as we worked through applying the ABC Control Rule a few times, that we felt we were not completely satisfied and yet a couple days before we spent a day reviewing all those things, but couldn't really identify what were the changes that we felt might be needed or issues that we could have discussed in more detail and refine some of our process.

DR. BOREMAN: Yes, I feel your pain; I feel our pain. I guess the take-home message; one of them is that you can't come up with a one-size-fits-all system. Every species acts a little different. What we have in our control rule for the Mid-Atlantic, which I call our sanity clause,

is a statement in there that the SSC is free to move away from the rule if we think something is better than what is in the rule; that we can handle it better, as long as we justify that.

I'm wondering if that is a statement that should go into the South Atlantic ABC Rule saying that in certain circumstances the SSC may have to not disregard the rule but modify the rule to accommodate the special circumstances of the species in question; and if they do so, they must provide adequate scientific justification.

DR. BARBIERI: Yes, sounds really good to me. John Carmichael, I don't know if we would have the time or the focus here to be addressing – I mean I thought this morning's discussion about the ABC Control Rule Workshop Report was more for us to sort of think about those topics, gather some general feelings about how the committee would proceed, and then I think we will have to revisit this some other time.

DR. YANDLE: I just wanted to add in another supporting reason for trying to look at a system that we can get some more flexibility in; is the current approach is very difficult to include socio-economic insights when we have them. If we could get a system that allowed some more informal flexibility, it would give us a lot of leeway, particularly in situations like we had with wreckfish the last time. I think it would be a very positive idea to try and figure out some ways to do this, not just for the reasons already stated, but also so we can start taking the socio-economics more into account.

DR. CROSSON: Just seconding that because the PSA scores have some element in there in terms of susceptibility, but it doesn't really get market demand or the fact that fishermen will go pursue other species sometimes. I think with the wreckfish it was pretty clear once you looked at all the economic data; that there was a reason that they weren't going out and catching wreckfish, but it wasn't due to a lack of stock being in the same place or any kind of decline.

DR. BARBIERI: Any other comments from the committee; any thoughts on how we would proceed? One option is we could plan another half day before the October meeting to kind of revisit those points again. If you actually look at that report, you are going to see the terms of reference.

Maybe those terms of reference that we developed about a year, a year and a half ago are stale now; because having gone through this process once, we may have realized that some of those things sound good but may not be easily obtainable in a quantifiable, objective way. Maybe we will look at this differently.

DR. CROSSON: I'm just trying to remember the timeline. The workshop was before we dealt with the king mackerel assessment last time, so you did this, and then afterwards we hit the problem with the PSA scores and having to knock off more than we were comfortable with, with king mackerel.

DR. BOREMAN: A half-day workshop of a committee of the whole is probably going to be as productive as the last workshop. I think what is needed is something for the SSC to react to; a proposal rather than come with a blank board and try to fill in and write the entire report out, which suggests that maybe – I hate to say it – a working group be established to draft something to bring before the SSC at the October meeting.

DR. BARBIERI: That is an excellent idea. I think that we came to that conclusion jointly last time and I'm glad you brought this up. Starting from scratch from those terms of reference as a full group doesn't really work out – John Boreman, would you be able to?

DR. BOREMAN: That is why I said I hate to bring it up.

DR. BARBIERI: Thank you so much. Now in terms of incorporating socio-economics, it will be good to have some socio-economist members. Well, Steve Cadrin had basically chaired that little working group the last time around; and since he is not here today, I think that we can do him a favor and volunteer him for this.

I'm sure that he would be eagerly raising his hand. That makes four; any additional interest from participants? Well, think about it between now and the time that we complete our report. We have four great people here lined up. You have a starting point from the previous report and you can at least see how not to do it and something that might be more effective. Thank you, JB, Tracy, Eric and Steve.

DR. ERRIGO: You will also have the support of some very industrious council staff to help you get this all going. We've done a lot of work in analyzing what we do have on how the ABC Control Rule has been working and been implemented so far.

DR. BARBIERI: Yes, Mike, excellent point. I think we have at least a game plan going forward for this, and we can flesh this out as we prepare our report in terms of additional participants or timelines for completion of drafts and preparation of the proposal document for our October meeting.

Unless there are any other questions or comments from the committee, I think we are ready to move on to our next item, which is an overview for you of the 2015 National SSC Workshop that several SSC members and council staff were able to attend this late February in Honolulu, Hawaii. It was a well attended and very interesting workshop.

We had as representatives from the South Atlantic Marcel, Steve Cadrin, and Scott Crosson. Then John Boreman was there as well as Chair of the Mid-Atlantic SSC. Mike Errigo was there as council staff, and I think that is it; but that gave us fairly good group participation on this workshop.

Before we kind of go through the general theme and all, let me ask committee members if they want to talk a little bit about their perceptions of the workshop, the theme and all the discussions and how they felt about it; brief the rest of the committee on what happened there.

DR. CROSSON: I guess a few comments and thoughts that came up for me after the workshop; there were some things that were a little frustrating about it; and this is the third National SSC Meeting I've attended. We tend to do a lot of this round robin stuff where each SSC speaks about an issue and you end up eating up hours of time.

There was an aspect of this that was worse than that, because they had us discussing just with our own SSC members about an issue, so the interaction that I was hoping for wasn't present. On the positive side, there were some very interesting presentations on climate change and possible

effects on stocks and some regions are noticing that quite a bit more, especially the New England area; not so much for us.

I can't remember who the guy was that was from one of the northeast labs that did that presentation where he showed these changes in stock catch rates for these different species, and it looked like something that you would think was very recent; and then he just showed that the paper had actually come out in the 1970s and that they had looked at these long-term trends where species do move around sometimes in response to shorter-term climate change.

There is something that you can use to sort of predict what might happen in the future. That was I thought quite interesting. Then the big topic that we really hit on in the second part was management strategy evaluation, which seems to be everybody's new big thing. Mike Wilberg from the Mid-Atlantic SSC did a very nice presentation.

I don't know if it came up at the workshop, I found out about this afterwards, but each of the science centers is going to get an FTE position on management strategy evaluation over the next year or so. Yes, so the Southeast Center is going to have one, the Northeast, all of them. That is something that NOAA is definitely committing a lot of resources to.

I came back from the national workshop and I kept thinking I really need to start reading a lot more about this stuff and it is on my agenda, but I haven't had really time to dig into it yet, but there is actually quite a bit out there. There is obviously a lot of potential interplay between the social sciences and biology through MSC. Those are the thoughts that I had.

DR. BOREMAN: It was too much crammed into too little time, too many topics. My recommendation at the end of that workshop was next workshop we focus on one topic. The reason why there was more than one is I was on the steering committee for this workshop and we couldn't get the east coast and west coast to agree on a theme.

We wound up with two themes; one to satisfy the west coast people and one to satisfy the east coast. The east coast, we were still hung up on data-poor, model-challenged stocks and the west coast wanted to get into ecosystems and all that jazz. We wound up with both themes, and that created little time for interaction that Scott already said.

The frustrating part was on the discussion period we were limited to have our discussion among our own team members and then report out on what our SSC thinks about a particular topic and come up with one or two talking points to the topic. I've been waiting for the report. As a matter of fact, we had this scheduled on our SSC for our last meeting in March because the draft report was promised within a week of the workshop.

I figured, well, we'll use the draft and then we can see and actually determine who said what and what the general themes were. We had to cancel that discussion for our March and we have it on our June agenda, but I don't think the report is going to make it for the June meeting either. I think the people who were organizing the workshop, which are the Western Pacific Council staff and SSC members; they didn't realize the amount of work that goes into writing one of these reports, having done one ourselves for the previous workshop, because that was hosted by the Mid-Atlantic. There were a lot of good, interesting ideas; too many to even take notes on because they were just flying around the room right and left.

That is why I was hoping to see the report and have some record of what actually was said; but a lot of highly talented people were there giving excellent presentations. Also, too many keynote speakers I thought – each keynote took up 45 minutes to an hour and that just killed it. We had five or six keynote speakers. One would have done nicely to set the tone for the whole workshop, and then turn it over to the participants.

Also, we had the obligatory dog-and-pony show from NMFS that took up an hour or two of stuff maybe. Again, my complain all along, since I was the original organizer or these when I was back in NMFS, is we have to be careful not to turn this into a captured audience so NMFS can parade out all their latest ideas and so on.

But there was a lot of annoyance of the participants that they had to sit through a presentation by NMFS that really didn't add to the theme of the workshop. It was just a while you're here we would like to tell you what is going on. I'm not going to tell you what the topic is because we're going to hear about it later today. For me it will be the third time.

DR. BARBIERI: Mike, anything to add from staff perspective sitting there and soaking up all the discussions and the information?

DR. ERRIGO: Actually, Scott and John pretty much hit on most of the stuff that I would have said. It was great to get a feeling for the different issues around the country, how each of the different SSC regions – you know, what the problems are there, how they're dealing with them, the issues, the differences, the similarities; but there was too much in too little time. It was unfortunate. I would have really liked to flesh out some of the topics a little more. It was a little rushed. There were a few too many keynote talks.

Perhaps if it was just one topic instead of two, it wouldn't have been so bad, but it was just kind of sitting and watching talks; and then when we were discussing, it was just chatting amongst our own SSC, which since we all agreed on our issues and topics in the first place wasn't much of a discussion so much as it just was let's just come up with a sentence or two to tell everyone else.

Not a lot of back and forth, which was a little unfortunate; but it was great to hear all the ideas and issues that are going on around. A lot of the keynote talks were really interesting. I was very interested in the MSE talks, the management strategy evaluations. It would be really nice to get some of that work going on here. I think it would be very helpful and very useful. It is encouraging to hear that the Science Center will be getting one of those positions. Hopefully, some of that work will begin to take place here. I think that is about all I can add.

DR. CROSSON: Yes, I forgot to mention the regular Pacific Council is based out of Portland and volunteered to host the next National Workshop if funding is available; and it would be on MSE. Everybody seemed to think that was the topic that generated a lot of interest.

DR. BOREMAN: That was the original proposal, as you recall. Then we went around the room and all of a sudden people started hanging more ornaments on the agenda. I thought it was a slam dunk when I raised it saying it is obvious MSC is a common theme and everybody is nodding their heads. But then people started, well, also we would like this and that; and so not so fast, I guess. I would like to see it just focus on that one topic.

The idea of these national workshops; one of the ideas is to see if we can have a consistent approach to these problems across all the SSCs, besides the fact that we all have a common enemy, but a consistent approach to handling like MSEs and stuff so it makes us more lawsuit proof, so to speak.

DR. BARBIERI: Yes, good point. One of the things that I was wondering and meant to bring up for discussion with the committee is whether, given the scene and topics discussed at this National SSC and this interest seems to be general on exploring MSEs and integration of more ecological factors and ecosystem factors into our single-species assessment frameworks, if it wouldn't be a good idea for us to start exploring a bit more, depending on our meeting agenda, how busy they get and how much we need to plan in terms of topics that we have to go through for advice for the council, to have more presentations or overviews of some of these applications of ecosystem models and MSEs that are taking place in the Southeast U.S; not necessarily all of them in the South Atlantic.

The Science Center has an Integrated Ecosystem Assessment Group that has been producing a number of very good results. They are specific to the Gulf, but they could serve as a way to give us an idea of how these things have been working out. We've had in the Gulf as well – primarily due to the impact of red tides; we also had some MSE work done by different groups that were looking at scenarios of how those things could be informing projections, consideration of projections, and a number of things that help integrate some of these ecological factors into single-species assessments.

It doesn't really depart too much form the council's more immediate needs, but broadens a bit the types of factors that we can integrate into our assessments or in management advice. Roger Pugliese organized actually a mini-workshop – I think it was a few months back – that was actually at the Institute in Saint Pete.

Marcel and I were there as chair and vice-chair, and there were several presentations trying to integrate some of this oceanographic factors and ecological factors into assessments and projections. To me it was like, well, this is something that our SSC has discussed on and off from time to time. It would be good to have some of those presentations, some of those discussions with all of you here; because then the input is so much better informed than having just that little group that we discussed at that workshop.

So, just an idea; I know that there are times when our agenda gets really, really full because we have to go through a number of topics that help inform management advice for the council or review documents that the council needs reviewed. But just an idea and I would like to hear from the committee whether there is concurrence on that or maybe too early or whatever your input might be.

DR. GRIMES: Well, if you have some workshops or further work on this incorporating environmental variables or habitat variables in the stock assessments; you ought to get some people from the southwest. Not to brag about the southwest because I've worked there; but they are much further along with that sort of thing.

The reason is really not – you know, they are no smarter or more forward looking than anyone else, but the ocean environment is very environmentally driven. It is very different than here.

High-frequency environmental variability is very low; sea surface temperature hardly varies at all; but then low frequency things, like El Nino and PDO and that sort of thing, really dominate the environment and the variability. It is the dominant signal and more importantly is it is unpredictable.

The animals are all really tuned to having to deal with that in a bet-hedging kind of way. Incorporating environmental variability in your stock assessments; it is pretty damned obvious that you needed to be able to do that and to be successful there. Rockfish, for example, are very driven by the environment, their population dynamics. I just would encourage you to look there, not to brag about them, but it is just logical that they are further along with it, I think.

DR. BOREMAN: I would caution, though, that a topic like incorporating environmental variability into stock assessments; that is not something that the SSC should be taking a lead on. We don't do stock assessments here. That is done by the Center and the state folks. If we were going to get involved in a topic like that, I think a more appropriate topic would be how we take environmental variables that are not currently incorporated in stock assessments and factor them into our determination of scientific uncertainty.

In the Mid-Atlantic we have a term of reference now that basically says did the stock assessment take environmental conditions into account, yes or no; and if not, then what did you do about it as an SSC? Are you taking environmental conditions into account and how are you doing it? Usually we do it by – well, the potential is to do it by altering our buffer, increasing our buffer or whatever.

If it is going to be a stock assessment focus, then this is I think the wrong group to be taking the lead on it. The Center should, but we should have some participation because we will be getting the product of that and dealing with it. But if it is how do you account for the risk of environmental change, climate change, climate variability into stock ABC advice to the councils, then that is a more appropriate topic for our group.

DR. BARBIERI: That is a very good point, very true. What I thought about was more our work in the Gulf with the Miami Science Center, the Miami Lab, and Mike Schirripa has been the one in terms of the integrated ecosystem assessment, leading that group, but they have about a half a dozen people that they work collaboratively with.

They are doing great work; but it is amazing when they come and present to the SSC or to the council how disconnected they are for no other reason other than they are looking at things more as a sort of research development of the science and exploration of the science; but it is difficult to communicate to them. How do you frame those things in a way and you prepare the modeling exercises, you configure projections to actually integrate this into the types of results that can inform catch advice to the council or can help inform council decisions?

To me it was surprisingly difficult. What they would come and present was not really intelligible to the council members as something that they felt. They said, well, this is great science, but, you know. I was thinking about more in those terms that if we have some of those presentations, we can start developing our own SSC advice so the translation of that science into a framework that is more management-oriented.

DR. BELCHER: I think it is kind of helpful to think about environmental, though, and thinking about what you're talking about with episodic events in nature of things; like you talked about red tide; Church is talking about El Nino and oscillatory effects in the Pacific. We kind of have those triggers with shrimp based on water temperature and all for emergency closures and things like that.

Maybe in some situations it is as simple as looking at things that we need to be aware of that are episodic; cold stunts with certain types of fish. You know, state waters deal with that relative to red drum and seatrout. There has to be some degree of management action that can be taken. But without having – obviously, El Nino is different, because there is a predictability pattern, but some of these things there is no predictability to it.

Trying to build a model with an episodic thing is a little bit tougher. Thinking about things like salinity and temperature, which we know have this ability to affect migratory patterns of fish and availability of fish; that is another thing of how does that encapsulate into the management? I understand it from the standpoint of availability of fish, but building management around those triggers and knowing that they flux makes it a little bit harder to have that discussion.

I feel good about the idea of episodes, us as a group talking about what do we do in those situations where you have massive die-offs? What do we do to the fishery? How do we best safeguard it? I think those are good things for us; and that is more helpful I think to the managers than what do we do with highs and lows of salinity gradients and they change?

DR. BARBIERI: That is exactly the type of discussions that I think that it would help for us to work with our Center and some of our academic – there are some academic partners in the region that are moving in this direction. We just basically have this as an informational piece, and we can start developing some relationship with the group and provide those types of inputs to them to help frame some of their products to the things that we need to get accomplished.

Well, we will continue working on this and thinking about getting something organized if it is possible for the October meeting – if not, perhaps for a future one – and bring for your review and comments. Okay, let's look at the next one.

DR. BOREMAN: Before we wrap this up, if anything, we have a working group in the Mid-Atlantic that is now developing kind of a guidance manual for the council on handling ecosystem-based fisheries management. We've been having a series of workshops that we bring in experts and have them sit with the council members themselves and have a full day of dialogue.

It is educational; it is what the issues are. John Hare was mentioned as a person from the northeast that was out at Honolulu talking about the oceanographics and changes in fisheries and so on. He came to our council. That group will be coming up with some reports pretty soon. If anything, I could probably report out on progress at the next meeting and what we're coming up with like what Carolyn is talking about.

I was thinking that one of the witticisms that came out of this dialogue with the SSC is that even though climate change is causing gradual change in the conditions out there, the effects are often catastrophic; like you see die-offs and stuff. Gradual change in salinity or temperature or acidity,

but how they show up often is something happens like overnight and you don't expect it. Even though climate change is maybe a gradual problem, the effects often are not. We need to be ready for those.

DR. BARBIERI: That would be great if you could keep us posted on that and perhaps share documents. We can post this just for our members to read through; and then if you can talk a little bit when you come to the meetings and give us a briefing on those things, I think it would keep us engaged in those types of discussions.

I think we are pretty much ready. We might have to skip the national standards, because we're going to have – no, we're going to have it around 10:"00 o'clock, because that is when Wes Patrick is going to be talking via webinar from San Diego or San Francisco, one of the two. Are we ready to perhaps move on to our council visioning project?

MS. VON HARTEN: I'm just going to bring you up to date and up to speed and give you an overview of the council's visioning project for the snapper grouper fishery. I apologize to the SEP members; they've already seen this presentation earlier in this week. This all began back in December 2012.

The council had been receiving growing stakeholder concern about how the fishery was being managed in more of a reactive mode versus a proactive mode and looking for some solutions to managing the fishery a little bit differently into the future. The council decided to kind of take something similar that the Mid-Atlantic Council had undertaken and come up with a sort of long-term strategic plan for the fishery.

Again, this is just focusing on the snapper grouper fishery only. There was discussion about possibly including other fisheries as well; but since this is one of our largest fisheries, starting with this one first. The goal was to develop this long-term plan that would include a vision statement and then specific goals, objectives, and strategies or actions that the council could use kind of as a framework to develop amendments and management measures into the future based on how they wanted the fishery to look.

The other key component of this project was to make sure that there is public involvement throughout the process, and I'll talk a little bit about that in a minute. This is the current draft vision statement and it reads, "The snapper grouper fishery is a healthy, sustainable fishery that balances and optimizes benefits for all."

One of the first things we did was every Monday morning of each council meeting, the council has a visioning workshop for about three hours. We had those starting in December 2012 to kind of develop the framework for how we wanted to carry out the project and also collect public input.

The first order of business was to collect the public input; and we wanted to do it in a way that was very different from our traditional public hearings and scoping meetings, which are pretty formal, and do it in a more informal way. We did a series of 26 port meetings throughout the region from North Carolina all the way down to Key West; and this is just a couple of pictures from those port meetings. We had over 370 participants throughout the region.

It was really a team effort on the staff's part as well as council members. The key component of what made these so successful is that we had members of the fishing community as well as council members help us organize these meetings. We had them at different venues and not just a hotel or something like that like you have these SSC meetings and AP meetings, but places that were more comfortable for fishermen to interact on an informal basis.

If you look in these pictures, you will see this bright blue wall in the background. We call this our sticky wall. Staff walks participants through a facilitated discussion about just simple questions, asking them what they saw as a problem or what were some issues in the fishery in terms of science, management, communication and governance. Those were the four strategic goals that the council identified that they wanted to get feedback on.

Then as we go those issues and problems up on the sticky wall, we would then organize them by themes. Then we asked them for solutions; how would they solve these problems and issues that they are seeing in the fishery through different management measures or different strategies? It was pretty well received and we got lots of great feedback.

Then we had the task of coming back from all these port meetings and compiling it and organizing it into some type of more formal document; and that is where we came up with these draft strategic goal documents that were organized under the four main goals, like I said of management, science, communication, and governance.

Last October we had a Special Council Visioning Workshop where we brought all the council members together between the September and December council meetings for two-and-a-half days to look at the feedback that we got from the port meetings and develop specific strategies to address some of the key issues that were brought forward during the port meetings.

That is those seven bullet points there you see on the screen; sub-regional management, reporting and data collection, bycatch, access to the fishery, stakeholder engagement, habitat and ecosystems, and allocations. We had a really productive two-and-a-half days where council was again led through a facilitated process that was a team effort on the staff's part.

We presented them an issues' paper surrounding those seven key issues to serve as points of discussion; and then we got the sticky wall out again and walked them through a process where they could actually identify some very specific strategies that could then become the action items in these draft strategic goal documents.

We started to review those strategic goal documents in December and are still reviewing those now. The council will see those final draft versions in June; and then this summer we are going to be going out to get additional public input on those draft strategic goal documents. Eventually these strategic goal documents will be combined into what we're calling a vision blueprint for the snapper grouper fishery.

The idea is for this document to be a very fluid document that would hopefully be reviewed on an annual basis as management issues change and council members change and can be revised in that way. I just quickly pulled together some of the key themes that came out under the objectives for the science and management goals; and that is what you see on the screen here.

For science, some of the key objectives that were developed were quality data collection that supports management, citizen science and cooperative research, looking at improving social and economic understanding, monitoring reporting improvements in ecosystem and habitat.

Then for management some of the objectives were sub-regional approaches to management that are both quota-based as well as non-quota-based; access to the fishery in terms of considering retention; effort in the fishery; seasonality and providing some flexibility; social and economic opportunity, and that was primarily targeted at fishing-related businesses; as well as recreational fishing opportunity; reducing discards; considering depth, size, limits, best fishing practices; and bycatch, quotas and allowances; ecosystem and habitat; and then, of course, allocations.

I believe in the SEP briefing book, Attachment 4A, actually has all these strategic goal documents combined into one. Kari put that together, if you would like to see those, and all of the information is also available on our website. This is kind of our timeline. Like I mentioned, the council is going to be looking at these final draft versions to prepare them to go out for public input.

This summer; it is looking like in July we're going to be doing some webinars that are specific to each strategic goal. Then we're going to also do this new approach that we tried just in the last week or two with our public hearings with these comment stations, and that is where council staff gets to stay here in Charleston and provide a webinar experience and presentation.

Then throughout the region, we have comment stations set up where there is a council member sitting there at the comment station and kind of facilitating and moderating any participant that wants to come in person and listen in on the webinar and have a chance to interact with council members face to face.

Then we'll probably also do some additional comment that is centered around our public hearings that we'll have in August as well. Then the council will review that input in September; and then we're going to have another Special Council Workshop the week of October 13th here in Charleston probably for a day and a half or two days where the council will look at the feedback and then start prioritizing short-term and long-term action items that would be developed into a snapper grouper amendment that is specific for the short-term items.

Then at the December council meeting the council will approve the final vision blueprint. Like I said, all of this information is on our website, on the visioning project page, all the briefing book material so you can kind of see the evolution of the project. If you have any questions, just let me know.

DR. BARBIERI: Any comments or questions from the committee for Amber?

DR. BOREMAN: As was said, the Mid-Atlantic Council has completed its visioning project. Ours was more broad, ours went across all species, all aspects of the council. It was a huge undertaking. I, like many others, approached it very cynically to start with saying, all right, as Bonnie Ponwith likes to say it will probably end up as a report sitting on the shelf as forage for dust bunnies. But actually I've been impressed with what the council has done with this vision statement.

They've built an annual – they have an implementation plan that comes out of the vision statement as the next step; and then the implementation plan is broken into the coming annual work plan and then a little longer term. Every year the council reviews the annual work plan, sees how it aligns with the vision and with the implementation plan, and uses it as a measure of progress and accountability, which I think is great.

Everything now is tied eventually back to the vision statement that was developed. It was a very open, public process. They gave out refrigerator magnets that share your vision was the mantra for well over a year in the Northeast and the Mid-Atlantic. It worked out much better than I thought, and the council has taken is seriously, staff and the Executive Director. When they present programs for the upcoming year and what priorities should be in place for assessments or other work of the council, it all traces back to the vision statement. Good luck with that.

DR. BARBIERI: Any other comments or questions for the committee? Amber, I have a quick one. That fish; is that a real data visualization?

MS. VON HARTEN: Yes.

DR. BARBIERI: It is just interesting, because I've been seeing some of this now where you capture this data-visualization types especially I guess for human dimension, integration of human dimensions and perspectives. The size of each one of the words and the color probably represents – can you explain it?

MS. VON HARTEN: Yes, I have to thank Kari MacLauchlin for this, because she introduced me to these. These are called word clouds. The size of the text and whatever that word is, is the frequency or importance that it was mentioned. I did these for each of the state port meetings, too, so that was kind of interesting to see what some of the issues by state kind of rose to the top.

Yes, it is pretty interesting, stock assessments, better data, permits, recreational data, reporting and the limits, MRIP, all of those kind of rose to the top. That was definitely one of the top issues that rose out of the port meetings were the public needing more information about how data collection works and also them wanting to participate in providing data.

DR. BARBIERI: Thank you, Amber, very, very interesting. Do you remember with the colors; what do they mean?

MS VON HARTEN: The colors don't mean anything; that was just you could pick different themes of colors.

DR. BARBIERI: It is interesting because you see what jumps out at you, right? It captures those should be the ones that actually had more importance to the group. Yes, just interesting. Well, this is going to be I think a little bit of a déjà vu for us, but in a kind of interesting, weird way. Yes, we are going to hear from Chip but giving a presentation as council staff.

The next item is the Oculina Team Evaluation Report 2015. Attachment 27 in your briefing book has the report. Chip is going to give us an overview of the report on this effort. Then I call your attention to the action item that we need to accomplish, review and comment on the report

with special attention paid to the response to the shrimp access request. Keep that in mind as Chip walks us through this overview.

MR. COLLIER: Thank you for calling me "weird". All right, just a brief background. The Oculina Experimental Closed Area; it was originally the Oculina Habitat Area of Special Concern; and that was originally formed in 1984. It is a 90 square nautical mile closed area off of Florida. It was originally closed to trawling, trapping, dredging, longlining, basically any bottom-disturbing gear.

Then in 1994 the closure increased, not in size but in regulation, increased to limit the fishing for snapper grouper in the area. Since 1994 there has been no harvest of snapper grouper species in the area, and it has basically been closed to all bottom fishing. You are not allowed to anchor in the area; you can't shrimp in the area. It has been a fairly protected area since 1994.

The goal of the Oculina Experimental Closed Area was to enhance the stock stability and increase recruitment by providing the area where deepwater species can grow and reproduce. The area that I'm talking about is generally between 2 and 500 feet of water, and it is about 20 miles off of the middle of Florida, a little bit south of Cape Canaveral.

This is a ten-year review that was requested by the council back in 2004. In 1994 they had put a ten-year sunset closure on the experimental closed area. In 2004 they reviewed it and said we want to keep it the same size; but they didn't want to just have a big black box out in the middle of the Atlantic Ocean. They wanted to make sure research was being done.

In 2007 they came up with an evaluation plan in order to evaluate what was going on in the Oculina Experimental Closed Area, and this is the ten-year review of that. There are sections on outreach, enforcement, and also research and monitoring. The report is broken out to include all those sections within the section. Each project in the section has a status review, whether it was being addressed in 2007 and whether it is being addressed or has been addressed by 2014.

It gives you a status and then also update from what team members back then had said and then the current review had said. Some of the recommendations that came out of that – well, going through there and looking at the number of projects; the overall outreach, they've completed 13 of 18 projects. Some of these projects are ongoing. Even though they've completed them, they are going to still continue to do them.

For the enforcement, they've completed 8 out of 9 of the projects. Then for the research and monitoring, it has been fairly low on the completion. They have only completed 8 out of the 33, but they have started 15 out of the 33. One of the major themes that come up as you can expect for monitoring a marine protected area is funding.

Funding has been lacking and therefore some of the research hasn't been completed. The biggest overall recommendation for the Oculina Experimental Closed Area was not to change any of the regulations or the configuration of the closed area. It is going to remain the same or they are requesting it remain the same since 1984.

There is some directed changes to information and education and outreach efforts, basically changing from what can we do to get outreach, but better ways to monitor how effective the

outreach is going. They felt they couldn't quantify how the outreach was going. Now we need to increase outreach, continuing the same methods we did, but also be able to quantify how effective our methods for outreach were.

For enforcement, there was a recommendation on trying to increase the overall enforcement in the Oculina Experimental Closed Area. What Florida has done is they've actually repositioned some of their assets in order to better monitor the experimental closed area and hopefully increase compliance.

Then the research and monitoring, there has actually been quite a few publications that have come out of research in the Oculina Banks. I think there have been 44 publications since 2004, so it does have quite a bit of research that has been going on, but there is still a severe lack of information.

Some of the things that they've looked at have been species diversity within the Oculina Banks. They've compared inside and outside. There have been some drifters that have been placed in the Oculina Banks to see if there is potential larval dispersal from there. There is also then ethnology project that was done looking at the overall feeling of the fishermen of the Oculina Banks. There is quite a bit of information that has been in this.

But one of the biggest things that was addressed in this Oculina Report is Section 6, which is the response to a potential shrimp access area that goes into the Oculina Experimental Closed Area as well as into the Oculina Habitat Area of Particular Concern, which surrounds much of the Oculina Experimental Closed Area.

With that, there was a group that was put together to develop the response, and I'm looking through my notes to get exactly what some of their concerns were. Their concerns included overlap with coral distribution and a potential shrimp access area. Oculina is a slow-growing deep-water coral; so if you were to be fishing around it or through it, it is going to have severe impacts on the coral.

One; they didn't like that the potential access area was going over known coral area; and then there was a second part that they felt that the coral needed a buffer to keep sediments from being redistributed, into the Oculina Banks. A third one was the potential bycatch in an area that has been closed for 30 years. They were concerned with that.

They recognized that there would probably be significant bycatch in that area. Then the fourth one was enforcement, adding another boundary that the law enforcement was going to have to patrol. With that; my thinking with some of the enforcement side was if it is a shrimp access area and you're going to allow trawling in the area, in all actuality you are going to allow shrimping in the area.

Why that makes a difference is the rock shrimp fishermen have to have VMS, so you can track them fairly well and potentially keep them out of the Oculina Experimental Closed Area. But if you're going to allow shrimpers in the area, why wouldn't you allow bottom fishermen in the area as well? Those fishermen do not have VMS and so enforcement would be much more difficult for that area. With that; that concludes my report. I'll take any questions.

DR. BARBIERI: I'm going to open up the floor for general questions from the committee.

DR. SMITH: Chip, I was wondering what the team's response to one of these items in the public comment that we got was – I'm just going to read straight from it; "The oculina also inhabit highly turbid nearshore littoral reefs where bioherms are adapted to exposure to turbid inlet discharge." I should have prefaced that with I know absolutely nothing about oculina, so I was just hoping to get a little more information, I guess.

MR. COLLIER: As far as the possible bioturbation and how that impacts the corals; there is not a lot of information on oculina and the impacts of bioturbation on their ability to grow. They are distributed in some areas; but the largest oculina banks varicosa is in that deep-water area. Ben is going to come up and correct me.

MR. HARTIG: No, I'm not going to correct you; that was right on. There are a number of things happening in the area. The limited bottom type of that type starts off of Jupiter. It comes back out of the sand in Jupiter and doesn't occur south of that area until you get into the Keys. There is a big break in that type of bottom. It starts in Jupiter, dives back into the sand north of Jupiter, comes up off of Stuart, another pinnacle, and then it dives back down in the sand and then comes back up in the Oculina.

Now there are a couple of pieces of rock in between, but not much. But the critical thing that is happening in the area is the major increase in upwellings that we're seeing. The water is much, much colder in the area, sometimes on a biweekly basis, based on the amount of cold water that is coming into that area as well as the area that I fish south of there.

Greg Gilmore – and I don't know if his letter is in that report; but he did send an e-mail out about his experiences; and he's been the premiere researcher for the history of the Oculina, doing submersible work way back in time, doing a number of spawning studies on gag and scamp, Warsaw grouper in spawning coloration.

He has done an awful lot of spawning work within the Oculina area, and he has gone back since then. The letter was very sobering in talking about just not seeing many gags in that area since the area has been closed, and it has been closed a significant amount of time; so that was sobering.

I was a member of the initial workgroup where we looked at this. I was a member of this as well, but I did not have time to participate at the level that I had in the past. But the key take-home message is there are probably some environmental characteristics that are occurring and have occurred in the last 20 to 25 years that are probably prohibiting fish from coming back to that area, because we see it in the area that I fish.

We see a large decrease in the amount of jacks. Gags used to be – it wasn't a lot of gags we caught, but the frequency of occurrence was there. It is no longer there in the area that I fish. The pressure has declined in the area and yet the fish have not come back to any great degree. There are probably some environmental characteristics that are added on to any potential poaching that may be going on that is impacting that Oculina Area. I just want to put that on the record.

DR. GRIMES: As you know, long ago Koenig and I did some diving down there. I mean, those upwellings, that all of a sudden cold water in that area off of Fort Pierce, it happened even then, but it wasn't very frequent and you got this total flip-flop in the fauna that was there. What do you think is causing that to be more common than it used to be? What is going on oceanographically?

MR. HARTIG: I don't know how much cold water it takes from a melting polar ice sheet. I don't know how much difference you have to have in the amount of cold water in the ocean to cause it to wash up on the shelf more frequently in areas with current that is so dynamic. I say the dynamics of The Bahamas and the Florida Straits there off Jupiter, where Florida has the most easterly point on the shelf right where I fish; the dynamics of the current is forced through there at a higher rate than most areas; because after it gets through there, it is allowed to expand.

There is another area off Texas and I talked to – I can't remember his name – one of the men on the SSC in the Gulf of Mexico, and there is a similar area off Texas where this occurs as well, where you have a dynamic current system; and they are seeing increased cold water events as well. I've gone to the oceanographers. I talked to John Hare about this.

I've talked to Roffer and he does the current patterns. But the problem is we have no long-term temperature data on the bottom in any of these areas. Now we could mine some of the old data, Churchill, where temperature was taken on certain submersible dives and maybe piece together some kind of a record of what happened in the past.

Now we need to collect that bottom temperature data to show what is happening in the area, because it is impacting more than just the bottom fish. The king mackerel are reacting to it, too, when these cold water upwellings move up onto the shelf. It has affected the productivity of that fishery as well. There is a lot going on that we don't know anything about.

We went in the assessment – in the king mackerel assessment we tried to track it using sea surface temperature, but the problem is it doesn't roll up to the surface on that great a frequency, so you don't get the true picture of what is happening on the bottom and the impacts that are occurring. While there is an increase in colder waters in the sea surface temperature over time, it doesn't give you the almost biweekly effects we see in some weeks.

I can see it on my machine; so I track it looking at the different densities in the water column on a daily basis. I can see where it's moving. Sometimes it washes up on the shelf; sometimes it is sitting right off the shelf. Then you have to change your fishing patterns based on where that cold water is on any given day. There are a lot of dynamic changes that are occurring in our area, which are counterintuitive to the climate change hypothesis that things are getting warmer. It is getting colder in the south.

DR. SEDBERRY: A couple of things. To get back to the comment that Will read; Oculina grows on the jetties at the entrance to Charleston Harbor and it grows at Grays Reef National Marine Sanctuary. It grows in very tiny, individual colonies here and there that are really patchy.

It doesn't form massive mounds and reefs like it does in the Oculina Banks, so it is a different form; it is genetically distinct. It may or may not be a different species. I think it has been

shown that it is not a different species. But, yes, it can grow where there is sediment, but it is a marginal habitat for it. Then the other thing is that upwelling is caused by the Gulf Stream coming out of the Straits of Florida, as Ben mentioned, and it diverges; and as that water spreads out, it has to be replaced by deeper, colder water. That has been going on forever. It may be that there is greater volume in the Gulf Stream now that is causing more of it or some other thing like that that is going on.

DR. BARBIERI: To that point, it is what we were discussing a minute ago about exploration of some of these ecosystem factors and environmental factors. A great presentation I saw a few months back form Mandy Karnauskas, who is at the Miami Lab and was trained with Claire Paris out of the RSMAS Group and a really integrative fisheries' oceanographer and just amazing stuff; that, yes, we have data limitations, but at least us starting to look at from an exploratory basis I think it would be really, really helpful to the council in informing their decisions.

Are there any other comments or questions for the committee? Remember that one of the issues that Chip was asking us specifically to respond to was our thoughts on the shrimp access request. He brought up some concerns that had been raised about this issue; but it would be good to have committee input from a scientific perspective on the potential costs or benefits associated with this access.

DR. GRIMES: These are not recent observations; but back in the early nineties – and I've talked with Grant Gilmore, too – the places where the coral was destroyed, it has been attributed to shrimping and/or using tumbler dredges for scallop fishery back in the day when that was prosecuted off the east coast of Florida.

I don't think there is any question but what trawling was at least part of the problem. We made dives down there where you would see furrows that looked like somebody had been through there with a breaking plow or something, and it was presumably the trawl doors, where you couldn't find a piece of coral any bigger than your thumb. As people have pointed out, that stuff is very old and slow-growing. It is not going to recover, and it is a high risk to allow shrimping. If I were king, I would vote against it, for sure.

DR. SEDBERRY: I've seen the same thing, Church. We were out there with ROV back then looking for gag spawning aggregations and we couldn't find any. We looked at a lot of habitat, and it was just decimated and there are trawl tracks through it. This is a very fragile coral. You can't bump into it without breaking it. I don't know how you could expect it to survive and keep these reef formations if you allowed trawling in it.

DR. SMITH: Just a point of clarification for me; is the question whether we're opening up a formerly closed area where there is currently this habitat or we're going to allow trawling in nearby habitats and that could possibly re-suspend sediments and smother the coral?

MR. COLLIER: It is actually both. The shrimp access area overlaps some of the coral distribution, and then much of the shrimp access area was just to the east of the majority of the oculina that has been described. Some of this area is pretty interesting in the fact that it is both OHAPC, so Oculina Habitat Area of Particular Concern, and it is EFH for snapper grouper

species and also rock shrimp as well. It was described as EFH for that. It does carry the EFH designation as well as HAPC designation.

DR. BARBIERI: Is there any additional input from the committee? Mike Errigo has been capturing some notes, which at some point we're going to have to turn into a consensus statement for our report. We can do that during the report-writing phase instead of trying to do this right here on the board. I don't find that very effective; but I just want to really request, those of you haven't really had any thoughts on this yet, to try and provide some measured advice there that can be used to the council.

MR. HARTIG: I think in having some conversations with the shrimpers during one of Roy's question-and-answer period; their questions were is it about the coral, is it about the fish, is it about the ecosystem? What is the Oculina Bank actually protecting? From my viewpoint, it is an ecosystem. You've got a number of species of fish that live on the reef itself.

Okay, at various times, usually at night, a number of the larger species, Warsaw in particular, forage off of the reef onto the mud; and if you look at Warsaw stomach contents, the major contents in their stomach are large crabs that live off the reef onto the mud bottom. They wanted to trawl right on this hard-bottom part, right near the veneer of the sediments.

To me it is part of the ecosystem. The other thing is some of the work that has been done with snowy grouper and yellowedge grouper; these animals don't recruit to the major reef itself. They recruit off the reef onto smaller micro-habitats that occur off the reef to avoid predation from larger animals. It just made sense.

Some of the work was done with oyster trap reefs way back when, and they collected those animals and those types of habitats. To me, all of the habitat is important as well as some of the buffer zone we have closed in the original experimental closed area onto the mud itself, which allows some of that area to provide the crustaceans necessary for some of the larger animals to survive.

I had talked to the rock shrimpers and I said, "Listen, if you want to shrimp in this area that has been closed for all these years" – and a lot of it is mud – I said, "Get a CRP together and go in and compare within that area trawls and without trawls. If you can show me that it is not that much different in that area than where you've trawled before, then I wouldn't have a problem with you opening it up."

But I said, "Before I would open it up, I want you to do the research; and if it is important to you and valuable to you, please do the research to try and convince me that you can trawl there without impacting the ecosystem as a whole." That was my viewpoint on it, and it has been my point all along for Oculina. It is more than just the coral.

DR. JOHNSON: I would agree with Ben; I think it is pretty clear to me that there is probably going to be some negative effects with this both direct and indirect due to the sediment. What isn't really discussed or presented is what is the benefit; obviously, the other side of that thing? Everything has a tradeoff. I think clearly there are negative effects. But until you can say that shrimping is going to be so profitable there that it is economically viable; that would be my other side of things. I think clearly based on what is presented here and what we know about that

system, it is a long-term resource and it's been protected for a long time. I think it is pretty valuable to leave unless there is a compelling interest to open that area.

DR. BARBIERI: I don't know; Chip, whether some of this was presented to the SEP and if you guys had a chance to discuss this in more detail. But, yes, having your well-informed perspective on this I think would help balance some of this discussion. It is unfortunate that we haven't been able to see that part.

There is still time, so between the end of this meeting and the time that we start writing our consensus report, if you could take a look at this report, which is part of our briefing book, and then provide some input; that would be very valuable. Then we'll combine all of that into something more cohesive. Chip, is there anything else that you would like to hear or get from the committee?

DR. BARBIERI: John, do we have time for a little break?

MR. CARMICHAEL: Yes, as long as it's a quick one. Wes is here and ready to go; but if folks need a break, I think we can do that while we get it set up.

DR. BARBIERI: All right, everybody, if I can have your attention; we will be now able to have our presentation from Dr. Wes Patrick, who is with NMFS Headquarters, the Science and Technology group, and he is going to give us an overview of the 2015 National Standard Revision.

Attachment 26 is the National Standard Revisions Proposed Rule Document. Before Wes gets started, let me thank him especially for taking the time to do this. Wes, we do appreciate you accommodating this presentation for us.

DR. PATRICK: I'm sorry about this, guys; can I try calling you on the telephone?

MR. CARMICHAEL: Yes, when you switch the things over to phone, I will get an alert that I can send you an audio pin and you will have to enter that.

DR. PATRICK: All right, basically I am going to try to give you a quick overview here of what we've been doing with the proposed rule. It came out in January, as you all know, and we're going to be accepting comments through June 30th. You are one of the last few councils I have been giving this presentation to. I think most of you are familiar with the National Standard Guidelines.

I guess the main thing I need to point here is that the proposed rule is basically revising NS-1 Guidelines; but we also have some revisions to NS-3 about managing stocks as used throughout its range and also National Standard 7, which is about minimizing cost benefits on fishery measurement actions.

You may be asking why we are proposing revisions to the guidelines now; we just did it back in 2009. Basically what we've been doing is we've been trying to learn what is working and not working in our guidelines. Since 2009 all the councils have implemented accountability measures; we've been hearing feedback from stakeholders and councils and others about what is

working and not working. We've had congressional hearings and proposed bills for the Magnuson Act and multiple, multiple meetings on the topic since 2012, whenever we did our advanced notice for proposed rulemaking.

Basically since this time we have been gathering all the stakeholder information and trying to get all of it into the proposed rule as best we could. The main things you can take away from this proposed rule is that it doesn't establish new requirements or require council to revise their current management plans,.

Rather, all this proposed rule does is provide additional security and responsibility in how we use the Magnuson-Stevens mandates. A lot of the examples that you're going to see later on in this presentation actually come from things the councils have already been doing. We've basically highlighted all these things that the councils have been doing and put them into the guidelines as examples of how it meets this flexibility and address these requirements and other requirements of the MSA.

With that flexibility, though, we are still within the sideboards of the MSA. We still have requirements for annual catch limits and accountability measures for any of the stocks in conservation and management. Also anywhere where we propose these flexibilities, the National Standard 2 Guidelines falls in where you still need to use the best information available.

If you have the red line version that we have on our website of the proposed revisions, you are going to see that there are tons of revisions. Most of those are editorial in nature. We're trying to move around a bit so they make more sense in a flow sense. We did have seven major revisions that we have in the guidelines, and I'll start with the first one here, which is flexibility for rebuilding programs.

Under the first element here about rebuilding programs, this is actually one of my longest sections we have. It has five subtopics; the first of which is going to be on calculating Tmax. Tmax; I think you are all pretty familiar with how we develop rebuilding plans. If a stock requires fishery rebuild, we just calculate Tmax as one generation time or generation time is essentially the average age at spawning population.

However, calculating generation time can sometimes be kind of a data-rich question or problem to solve; because to calculate it correctly you are going to need to know the age structure of the population, age at maturity, maximum age, and then the fecundity for each age class. In those cases where you don't have that information, councils sometimes have to come up with a proxy for what generation time is.

That can lead to overly conservative or not very precautious F rebuild rates whenever you go through the process of calculating F rebuild. Basically what we've done in the proposed rule here is try to introduce two new methods of calculating Tmax that aren't so data intensive. As a result, we will have three different ways of calculating Tmax.

We'll still have our generation time plus Tmin, we'll also have two times Tmin, and then the third option is the time needed to rebuild to Bmsy when fished at 75 percent of MFMT. You all may be thinking that sounds familiar, 75 percent of MFMT; and that is because in our current

guidelines we say that when you reach the end of a rebuilding plan and the stock still hasn't reached Bmsy, you can continue to rebuild at F rebuild or you can fish at 75 percent of MFMT.

We use that same logic for calculating Tmax here. How these three different methods of calculating Tmax compare is shown here on this XY scatter plot or graph. Basically the X axis here has a productivity measurement where if you have the value of 1 on the right-hand side where you're a fast-growing species, sort of like tuna; and if you are on the left-hand side, you're a slow-growing species like a shark; and you can see that the three different ways of calculating Tmax here overlap regardless of the productivity of the stock.

There are going to be some places, though, where the difference between the calculations are going to be five or ten years' difference. In cases where a council can calculate all three methods of Tmax, the guidelines say that the council should provide a rationale for why they chose one Tmax over another.

We think that will probably largely come down to a discussion over which one is the best available science. The next subtopic under rebuilding is adequate progress. The Magnuson Act requires the secretary to determine if adequate progress is being made in a rebuilding plan and that adequate progress should be monitored every two years.

Our current guidelines don't provide any guidance on what adequate progress is or how you should monitor it; so we've clarified in this proposed rule that we can continue to use stock assessments to look at progress in rebuilding plans like we have in the past. Since introducing annual catch limits back in 2006, annual catch limits are another way of monitoring catch at relative to the rebuilding plan or the council may have other appropriate performance measures that they have developed to look at adequate progress.

Also with adequate progress, we've provided a definition of when it is not being made. This is one of my older slides. This first bullet point down at the bottom should say adequate progress is not being made if fishing effort, not catch, is greater than F rebuild or the associated annual catch limit and that accountability measures are not effective at preventing those overages.

Just to clarify here, we are not trying to say that if you're in a rebuilding plan and you exceeded your annual catch limit one time, that adequate progress isn't being made. It is actually the continuous exceedance of your annual catch limit and that your accountability measures aren't effective at correcting for those overages; that is when we might declare inadequate progress.

You also might find yourself in a situation where you get a new stock assessment that totally changes your expectations on what the status of the stock is. A good example comes from New England with their Atlantic cod population where they had been in a rebuilding plan for a while, as most of you know, but in recent years they have been keeping their catch below their annual catch limit and were expecting to rebuild the stock around 2010.

However, they found out that there were some issues with their stock assessment from three years prior to that; and whenever they got their new stock assessment, they found out that they were looking at 80 percent reductions in catch because the biomass had plummeted during that period. In those cases when you have such a dramatic shift in what you thought the status of the

stock was, there is some provisions in the Magnuson Act that allow you to soften some of those reductions.

It is under the interim measures and emergency action portions of the Magnuson Act. There is actually two different sections to it. There is a 304(e)(6) that only pertains to rebuilding stocks, and then there is a 305 – I think I have those sections right – there is a 305 section that is about all other stocks.

In the proposed rule, what we're doing is trying to provide some additional guidance for what these interim measures mean for rebuilding stocks. Interim measures mean that the councils can reduce but not necessarily end overfishing whenever they trigger one of these interim measures. Basically, I think we've only done this once in the past; and that was for Atlantic cod under the rebuilding measures, but we have used emergency actions in other cases down in the southeast.

I think the most recent example is blueline tilefish. When we did that one occurrence for rebuilding stocks in the Atlantic cod, this was the guidance that we gave New England – and we've put this into the proposed rule. We said that interim measures should rarely be used and that they need to meet these three criteria in order to be used.

They need to have an unanticipated and significantly changed understanding of stock status; that ending overfishing immediately would result in severe social and economic impacts; and that whatever interim measures you put in place during that period allows the biomass to increase during that period. The period for interim measures are only 180 days.

It can be extended one more time for another 180 days. Really this is a one-year measure and not multiyear measure. Also within the rebuilding provisions, we were looking at trying to simplify and make the process more transparent for how rebuilding plans are updated and revised.

In some cases councils will – each time when they get a new stock assessment, they may modify their F rebuild or they may modify their T target, depending on probabilities of how likely they are to rebuild to their biomass level on a given date. What that can do is sometimes put a lot of workload on your SSC stock assessment.

It can also cause some transparency issues about the original rebuilding plans at X, but now we actually have changed that three or four times and now we're doing Y. Our proposed rule is trying to clarify here that we would prefer that it is kind of a one-and-done type of process. Once you've calculated your Tmin and your Tmax, gone through this tradeoff analysis about where T target falls in between those two reference points and you've then specified an F rebuild; but the primary objective for a rebuilding plan is to keep F at equal to or less than your F rebuild reference point.

If you are to do that, you should on average rebuild the stock on or about the time that you thought it would rebuild. Sometimes you rebuild quicker and sometimes it will take longer. What we're trying to do is put less emphasis on trying to make a stock rebuild at biomass to a certain threshold or amount when maybe the environment isn't going to be cooperating with you. We're trying to make it more apparent that the projections for when a stock rebuilds are just that; they are just projections that assume different levels of recruitment during that period, and that

we shouldn't be ratcheting up or ratcheting down the F rebuild during that period significantly in order to keep track.

This last point on rebuilding is about discontinuing a rebuilding plan. Currently the way that we do a rebuilding plan is once a council has been notified that their stock is overfished, they have two years to develop a rebuilding plan. During that two-year period, a council has the opportunity to do another stock assessment to figure out whether the stock is really overfished or not. If it is in the two-year period and they implement that rebuilding plan; and once it is implemented, you can't discontinue your rebuilding plan until the stock has reached Bmsy.

However, that should say 2013 National Research Council Report on rebuilding stocks highlighted the fact that the biomass estimates that are outputs from stock assessments are often the most uncertain values that come out of the report relative to fishing mortality rates; and that whenever they reevaluated nationally the stocks that we've had in rebuilding programs, they later said when we looked at the best new scientific information available, and they found that around 36 percent of the stocks that they evaluated had never been overfished, but yet were still in rebuilding plans.

In this proposed rule what we're doing is trying to recognize that we can make mistakes and that we don't want to have this kind of locked-in system where you have to continue a rebuilding plan if the science shows that the stock was never overfished. A rebuilding plan can be discontinued if the following criteria are met:

The Secretary determines that the stock was never overfished, as originally thought, and that the biomass of the stock is currently above the MSST, so it is not currently overfished. That was Element 1; it was a really long element. The rest of these are much shorter, so hang in there with me.

This next element here is about improving management of data-limited stocks. This is something I got a lot of interest from the South Atlantic folks whenever I was at the National SSC Meeting. Basically what the proposed rule is doing is recognizing and clarifying that alternative approaches to setting that determination criteria, like MSY and ABCs and OFLs and such, can be used for data-limited stocks when maximum sustainable yield estimates cannot be calculated.

You have already been doing this for a while, as well as many other councils. These alternative approaches must show how they promote sustainability; and some examples of methods that you've been using in the past are like ORCS or Restrepo's sustainable average catch methods. There are new methods being created it seems like every month now for data-limited stocks.

This list isn't supposed to be the only method you can use; it is any methods that become available that show that they promote sustainability. By recognizing that not all stocks can calculate a maximum sustainable yield estimate; and instead saying that even though we can't estimate MSY, we do think we can set a level of catch that promotes sustainability, the other requirements of the MSA will still apply.

So for these data-limited stocks, if it's possible, NOAA Fisheries is encouraging that overfishing limits, ABCs, and ACLs still be specified for these data-limited stocks, as you have been doing.

I think the only difference here is about specifying an overfishing limit for these data-limited stocks based on this alternative approach, so the overfishing limit isn't tied directly to the MSY. It is tied directly to what you think the threshold level of catch is for sustainably managing that species.

Another point here down at the bottom is that we've had some conflicting language in the 2009 guidelines that basically said when possible you should try to manage a stock on the individual basis; so if you had an assessed stock, it should have individual reference points. We also had guidance in there that said whenever you're using a stock complex to manage data-limited stocks, that we encourage you to use indicator species or assessed stocks to help monitor the health of that complex.

But what has happened is whenever you have a complex and you assess one of those stocks within the complex, we often take it out and assess it or manage it on an individual basis. What we wanted to do in this proposed rule was delete that reference that when you have an assessed stock you should manage it on an individual basis. We've deleted that sentence, and we've continued to emphasize that when you're using stock complexes, where practicable, we encourage the use of assessed indicator stocks to better manage those complexes.

Another big revision that we've made in the guidelines here is about stocks that require conservation and management. Between 2009 and now we've heard that there have been some issues with the way that we developed criteria for ecosystem component species, in particular the criteria that it be a non-target and also that it not generally be retained; whereas, the feedback that we've been hearing was it doesn't matter whether it is a non-target or what is generating the change.

What is really key to the discussion is; is it overfished, subject to overfishing or is there information to suggest that it is likely to become so in the future if you didn't manage it with OFLs and ABCs and such. Also, we've had guidance on what stocks require conservation and management spread across three different guidelines.

We have our stocks in the fishery and ecosystem component species in NS-1. We have a National Standard -3, FMU stocks, and data-collection-only species; and then in National Standard 7 we had a list of 10 or so criteria about when to include stocks within the FMP. Rather than have all the information spread out across those three guidelines; what we've done is we've consolidated all that information and we moved it all up into the general section of the National Standard Guideline.

What the general section of the National Standard Guidelines are is sort of the introduction. Before National Standard 1 Guidelines ever start, it is the introduction about what are the national standard guidelines, how shall they be used to evaluate FMP and FMP amendments. We thought it was more appropriate to have this guidance about what stocks require conservation and management and thus need to be included in the FMP and managed with reference points and OFLs and such all up in the general section.

What all that guidance boils down to is that stocks that require conservation and management and need to be included in the FMP are those stocks that are predominantly caught in federal waters, are overfished, subject to overfishing, or likely to become so in the future. If you meet

those two criteria, then those stocks need to be included in the FMP and you need to have status determination criteria for it and all the other requirements that go with that.

We also brought along the National Standard 7 Guideline factors about what factors should be considered when adding a stock to an FMP. What we have here is the list of ten different factors. These are factors that a council can consider for inclusion of a stock in an FMP. If you meet one, two, or three of these factors, it doesn't mean that you necessarily have to include it in the FMP.

These are basically recommendations for the council to evaluate when trying to figure out whether a stock should be included or not. Also this isn't an exhaustive list. If the council identifies other reasons for including a stock in the FMP, they can use that as well. The result of all of this is that we have three categories of stocks now that can be included in the FMP.

We also understand that the last time around there were some issues about trying to change the terminology of what stocks should be included in the FMP and everybody had to start using this new term "stocks in the fishery" or "ecosystem component species". We are trying to avoid that this time.

Even though we're introducing these new topics, we've clarified that stocks in the fishery are the equivalent to that first category, stocks that require conservation in management, and that ecosystem component species is the equivalent to stocks not in need of conservation management, I should say. Those don't need SDCs and ACLs; but you can continue to provide some management measures for those species like prohibit catch.

Then we have this third category that I'm not sure really applies, but maybe it does in the southeast, is other managed stocks. Basically that is cases where you have a stock that is in need of conservation of management, but it has a wide range and it is actually caught by multiple fisheries and shows up in two different fishery management plans.

There was some confusion about, well, we want to provide management measures for this stock; do we also need to provide SDCs and ACLs and AMs in both FMPs? What we've done here is clarify that really all you need to do is specify your SDCs and ACLs and such in the primary FMP, which the council will identify, and in the secondary FMP all you need to do is provide management measures that are consistent with the primary FMP.

The fourth element here is trying to introduce some new terms that advance ecosystem approaches to management and also some clarification language related to optimum yield. First here is we're clarifying that the concept of aggregate maximum sustainable yield can be used to manage fisheries.

I think you are all aware about how we've always used individual estimates of MSY for stocks, but the use of aggregate maximum sustainable yield is beneficial from this ecosystem approach viewpoint in that it can account for these multispecies interactions. We've clarified that if councils want to use that, they can and that you can also use this approach to maybe specify optimum yield for your fishery. That occurs in the OY provisions of the guidelines. Rather than specifying OY for a stock or stock complex, you might want to use this approach, just specify it for the fishery overall.

We've also clarified in the guidelines how optimum yield relates to the annual catch limits. I think the southeast is already doing this, but in 2009 guidelines we never really clarified how MSY and OY align with the ACL's framework. We did note at that time in 2009 that the annualized expression of MSY is the equivalent to your overfishing limit, but we never said where OY fell on that continuum. Here we're clarifying that optimum yield is equal to – it should say – or less than, ACL, if you were to express it on an annual basis.

Lastly, on this point is under the optimum yield provisions; in the past we've always clarified or noted that when you're going through the process of assessing and specifying optimum yield, it is a quantitative analysis that considers your economic, ecological, and social factors. But we realized that sometimes isn't possible because we don't have the actual hard data on what maybe the social and economic issues are within the ecosystem or within the fishery.

We've have lots of information usually about the biology of the species or some of the ecological functions that it has with ecosystem but not the socio-economic factors, in general. What we've done is try to make it easier for this not to be done in a qualitative manner; so we say when you're changing this is a quantitative way, you can use a qualitative approach such as using a working group to come up with estimates of how socio-economic factors or ecological factors play into the optimum yield specification process.

This element here is another major revision we made to the guidelines, and it is about providing more stable catch levels in our fisheries. We've got three different subtopics here. The first is multiyear overfishing definitions, and that really just relates to how we go about making status determinations.

The second one is on phase-in approaches, and that is about how we react to stock assessment information. Then the third is about the use of carryover provisions in fisheries. The reason that we have these provisions in here is that we're trying to recognize and then think of ways of how we can react to the uncertainty that we have through the stock assessment process and dealing with things like retrospective bias and how our estimates of Fmsy, Bmsy, and maximum sustainable yield will change from assessment to assessment.

Often people think of these reference points as accurate estimates of this is definitely what Fmsy is; but whenever you get a new stock assessment, that estimate will change based on the new information that you have. On average it may be even higher here. I used a simple example here. On average these reference points can change around 20 percent in percent difference between stock assessments.

When you're looking at just a variability between stock assessments and catch occasionally going upwards or downwards by 20 percent; in some cases it can create some instability in the markets. To help stabilize some of the catch levels that we have in our fisheries, we have multiyear overfishing definitions that we're proposing.

Currently the way we do this is we look at the stock assessment and look at the terminal year estimate from the assessment that is often the most uncertain to things like retrospective bias to make a status determination decision. That can result in false negatives and false positives. If you try to help not make those types of false negatives and false positive determinations, we're allowing councils the option to define multiyear overfishing definitions that may not see three

years. If they do choose to go this path, they also need to document how their approach won't jeopardize the capacity of the stock to produce MSY.

I think I am preaching to the choir here, because you have already been doing this. This is the example I've been using on all my whole circuit here for this presentation is we have the snowy grouper example from your region where my understanding is you recognized a retrospective bias in the assessment, and you've gone to a three-year geometric mean to calculate your fishing effort relative to FMSY.

In 2012, for example, your terminal year data point was above the one ratio there and normally you would have declared that stock as overfishing; but because you used a three-year average, your value was much lower than one and so we didn't declare it as overfishing. The idea here is that if it had been the opposite where 2010 and 2011 were above the line and the 2012 data point was below the green line; well, then you probably would have declared it overfishing, because the three-year average would have been something like 1.2.

We're also trying to clarify here that a multiyear overfishing definition is something that you shouldn't use like a light switch; use it when it's beneficial. The idea behind this is the rationale you provide in your FMP is that it is going to show how if you stick with a three-year average, if you do go this route, then you need to talk about how you'll stop using this approach whenever you want to move back to a single-year estimate.

Looking at phase-in approaches; basically phase-in approaches is a tool for minimizing dramatic shifts in catch based on new stock assessment information. This isn't a new concept. We've been using it for a while. The Pacific Halibut Commission has been using it, European Union, and even some of the west coast fisheries have used it in the past, too.

Basically, just like multiyear overfishing definition, a phase-in approach may not exceed three years, but we have a more comprehensive or beefed-up caveat here in that if you use a phase-in approach, you must provide a comprehensive analysis of how the phase-in control rule prevents overfishing and when the control rule should and should not be used.

A comprehensive analysis; we didn't clarify it in the guidelines, but we were thinking along the lines of like a management strategy evaluation. Why do we have this provision here about when it should and should not be used? Well, a good example comes from the Halibut Commission. They were using a phase-in approach.

They did a management strategy evaluation a few years after they had used it and found out that the actual control rule was contributing to the population decline of the species. It actually wasn't – even though they were trying to minimize the shifts in catch; that process was actually contributing to the decline in the population because the science couldn't catch up with the biology of the stock.

Basically in this analysis you want to identify when it is appropriate to use and not use this approach. Here I have a really simple example of how a phase-in approach would look if you were to apply it. What I have here is the normal-looking approach where you have an ABC control rule; you are having a stock assessed every three years. In 2014 here you have a new

stock assessment that reduces the overfishing limit and the resulting ABC control rule would have reduced catch from 500 metric tons down to 360 metric tons.

So rather than take that 140 metric ton reduction in one year, if you were to use a phase-in approach, what you would see is that rather than take that 140 metric ton reduction in 2015, you could take a 50 metric ton reduction and still be below that overfishing limits. In 2016 you might be 100 metric tons below; and then in the third year in 2017 you are down to your normal ABC control rule.

You still get the same effect of reducing that catch, but you are doing it over a longer time period. This is good for stabilizing catch; but what it is not good for is it's basically the tradeoff in your risk of overfishing. Normally you have this 25 percent buffer between OFL and ABC. By using this phase-in approach you basically, in this case, come very, very close, like maybe a 1 percent buffer between your ABC and OFL in 2015; whereas, you may be only at about 12 percent in 2016, and then you are at your normal 25 percent buffer in 2017.

This is another reason that we've emphasized the use of this comprehensive analysis to show how a phase-in approach will prevent overfishing. Lastly, here on carryover provisions, I think you might be familiar with this. The Gulf Council has I guess been using it for red snapper and not the South Atlantic.

But regardless, carryover provisions is something that has been used for a while in catch share fisheries. In catch share fisheries it wasn't a big deal in that you had catch that was allocated to individuals, and the provision was set up mainly to address safety-at-sea concerns where we didn't want to encourage fishermen to go out in the last few weeks of the season if weather conditions were bad, and that they could carry over that little bit of catch the following fishing year.

In those catch share fisheries we were looking at 1 or 2 percent carryovers to the following year. However, the idea of carryover became popular in non-catch share fisheries here in recent years. The amount of carryover that they normally look at is maybe 5, 10, or 15 percent. When you have that large a percentage being carried over, sometimes the catch that you carry over will exceed your SSC ABC recommendation; and even in some cases I think it has been higher than the overfishing limit.

We've been sued over the use of carryover provisions when they exceeded ABCs. The court ruled that if we are to use carryover provisions you need to have a process in place to make sure that the SSC's recommended ABC isn't exceeded in the following year. That is the reason we've included carryover provisions in here at the ABC Control Rule; because if you do have carryover that exceeds your ABC, there needs to be some kind of process in place that allows the SSC to respecify the ABC.

If you don't have a level of carryover that will exceed your ABC, then you don't have to worry about that and you can continue using a carryover provision by using ACL provisions. An example of that is I think almost all the councils that use a carryover provision now have a buffer between ABC and ACL. If the amount of carryover doesn't exceed their ABC, they don't need to worry about a Carryover ABC Control Rule. But if it does exceed the ABC, then they need to have a process in place to address that overage.

This example here; you can do carryover provision in a lot of different ways. The easiest way is to just do an update in your stock assessment. Another way that Rick Methot has thought about it is maybe in your stock assessment report, if you had a matrix table in there that showed that if you only caught 90 percent of your ACL in the following year, the second year's OFL could be increased by a certain amount based on the stock assessment analysis.

What I have here is a really simple example; and it is basically showing that sort of like a cell phone plan is when you don't use up all your minutes, you can carry it over to the next month. Well, in this case rather than it being a one-to-one ratio, I was just trying to highlight that maybe it's not a one-to-one ratio. Maybe it is something that you need to account for like natural mortality or other issues related to the population dynamics of the stock.

In my example here is they actually caught less. They were 500 metric tons below their OFL; and rather than carry 500 metric tons over to the following year; you apply a natural mortality rate to it, you end up only carrying over 400 geometric tons. Anyway, a simple analysis. There are a lot of different ways of doing a carryover provision.

The same caveat that applies to phase-in approaches also applies to carryover provisions. You need to provide a comprehensive analysis of how the carryover provisions will prevent overfishing and when it should and should not be used. The sixth element here is about defining depleted stocks.

This is something we've been hearing from stakeholders for over a decade now, and you also see it popping up in some of the draft bills on Magnuson Reauthorization. It is more about the terminology about overfished and how overfished seems to put the cause of a stock falling below its MSST on the shoulders of fishermen because it has been overfished.

But you all know that a stock can fall below its MSST not just based on overfishing, but also it might be due to environmental conditions that maybe have provided low recruitment or the lowest recruitment you've seen in history that has made it fall below its MSST. Rather than call all stocks overfished when they fall below MSST, we're trying to introduce this term called "depleted" that clarifies that the stock has fallen below its MSST due to environmental conditions and not overfishing.

The feedback we got when trying to come up with this difference between calling a stock overfished and depleted was that it puts a lot of onus on the SSC and stock assessment folks to parse out, well, did this stock fall below its MSST because of overfishing or was it environmental? It is usually going to be some kind of combination, and we don't want to have this responsibility for what to call this stock?

To try and resolve that, we tried to make it a very black and white kind of definition in that we specified this time period of two generation times of the stock. If the stock has fallen below its MSST, you look back two generations time; and if it has experienced overfishing at any point over that period, you call it overfished like you always have.

But if it hasn't experienced overfishing during that period, then you can call it depleted. The same case can apply to stocks that are already in rebuilding plans. You've been calling them overfished for years and you've been keeping your catch below F rebuild, but yet the stock's

biomass isn't showing any significant signs of growth. A good example of this is the crab fishery down in Alaska that they basically have closed the fishery that is only a bycatch fishery, and the biomass of the stock isn't really showing any signs of growth and it hasn't been fished in I think 20 years.

In those cases where you've basically reached T target in your rebuilding plan, been keeping catch below your F rebuild rates, and the biomass hasn't increased, you can stop calling that stock overfished and call it depleted. We have this process in place for what we call overfished and depleted stocks, but the overall result isn't any different. It is just a terminology change.

Depleted stocks and overfished stocks still require rebuilding plans. The only thing different about a depleted stock is that it kind of triggers or raises some red flags about, well, what is going on with this stock that is not normal that we're used to working with? One of the first things you might want to do with a depleted stock is reevaluate the reference points for that stock and make sure they are still applicable to the environmental conditions that we have today and if that is a long-term trend. Is that one directional or is it just in a short cycle period?

Also, you might want to look more closely at trying to develop habitat improvement management measures to try to recover that population back rather than focusing solely on more fishing management measures.

This is the last one, and this is about improving the routine review of FMPs. Basically, this all occurs in the general section of the National Standard Guidelines. What this is saying is we already have guidance in the general section that says FMPs' goals and objectives should be defined to help us evaluate the national standards against the goals and objectives of the fishery management plan.

All we've done here is add in one sentence that says we recommend that councils reassess the objectives of their fishery on a regular basis to reflect changing needs of the fishery over time. Basically, we're trying to highlight the nice things that some of the councils have been doing, like Alaska, Mid-Atlantic and the South Atlantic, on doing these type of visioning or stakeholder meetings to try to go through and reevaluate their goals and objectives, to update them.

Sometimes they become a little bit stale. What we mean by regular basis here is that we want the councils to identify a time period that basically turns into a timetable or schedule that every three, five, seven, ten years, whatever the council decides is appropriate, we will reevaluate what these goals and objectives for our fishery are and determine if they need to be updated or not.

Those things could also include issues over allocation stuff. It is more about a transparency about letting your stakeholders know that we will be reevaluating the overarching goals and objectives of our fisheries every few years. We don't want to be trying to address them at every council meeting because they can take up too much time on the agenda when you have specific measurement actions that you want to take on.\

Really, that is it. I just wanted to clarify again that the main thing we're doing in these guidelines is improving, clarifying, and streamlining our guidelines. You are not going to see any requirement in there that you have to do based on this proposed rule, if it was to go final. We're trying to stay within the sideboards of the MSA, and we're hoping that we've addressed

adequately all the comments we received over the last couple of years. If you haven't found this website yet, it might be useful to check it out. It is basically our website that has basically the history of everything related to NS-; 1 and we also have some frequently asked questions about the proposed rule as well as the red line version on there that you can download and see all the revisions that were made to the guidelines and not just these seven major elements. That's it.

DR. BARBIERI: Thank you, Wes, for this great overview; it was very informative. I think it was good for the committee to get to see this. Let me reach out to the committee and see if we have any questions or comments for Wes regarding his presentation. No questions or comments, Wes. I think it was so informative that everybody just soaked it in.

DR. PATRICK: Well, thank you; and if you guys have any questions, feel free to shoot me an e-mail and I'm looking for your comments.

DR. BARBIERI: All right, the next item on the agenda is Annual Research and Monitoring Plan. I would imagine that as usual we're going to get a quick overview from John Carmichael on the current Draft 2015 Research and Monitoring Plan, which is Attachment 28 in your briefing book package. The action item for the committee is to review and provide comments on the plan.

MR. CARMICHAEL: That's it; and we've been around this bush annually for, what, four, five, six years now. It seems like a long time, we keep doing this; submit it to the agency and hopefully it feeds into the plans that are ultimately made that lead to research and monitoring. As in most years, there is some highlighted text which represents the changes from year to year.

I won't go through those exhaustively. One I will highlight though is the additional paragraph here which addresses the need to have evaluation of stock structure and identification of stock units before conducting first-time benchmark assessments. This could affect scamp and gray trigger. We would like those done by 2017 so we avoid some of these problems we've been getting into recently.

We have a request for an evaluation of the survey and biological sampling information for all unassessed stocks. The idea is to start identifying which species might be out there with some potential for assessment as we try to continue to hammer away at what's our universe of potentially assessed stocks.

Drop the one about mixing rates of Gulf and South Atlantic king mackerel, because I think finally after many years we might have one that we can drop from this list that is considered to be addressed. I think that is probably primarily it. With that; any comments, suggestions. The process is this will go from you to the council in June and then we'll submit it to the agency.

DR. GRIMES: Relative to that one you were dropping; that's dynamic. Maybe you want to say every five years or something like that; but that can have a huge impact on the outcome of the assessment, the proportions in the mixing zone. It seems like on some long periodic basis that could still be urged.

MR. CARMICHAEL: I think that's good; something that maybe moves from research more to monitoring to keep up with potential dynamic changes.

DR. BUCKEL: This comment is specific to the bottom longline sampling for tilefish; that research recommendation from the council. I was involved with the review of those longline surveys, and the trap and video survey. One of the conclusions from that review – I don't remember exactly – there was a short bottom longline recommendation and long bottom longline recommendation.

I'm pretty sure for the long bottom longline recommendation, the issue was a mismatch between where the longlining had occurred in the past and where the fishery was not being prosecuted. If the council is going to request this funding, I would recommend that they go back to that review report to make sure of any new sampling deals with the issues that were brought up. I think, as I recall, it was going to be very expensive to do it properly, so there is no sense in going out there and continuing something that isn't going to provide data that is useful for the assessment.

DR. SCHUELLER: This is my first time doing the Annual Research and Monitoring Plan. Can you guys provide a little bit of information about what happens with this; and then depending on that statement, I might have one comment.

MR. CARMICHAEL: We do it because it was required in the Magnuson Act Revision that the councils report to the agency on their research and monitoring priorities and five-year plans. We submit it to the Science Center Director and the Regional Office. What happens with it from there is not within my circle of wagons, I suppose, so it is really hard to say.

We ask that we get feedback as to what's being done; and we have recently gotten some reports back, I think submitted maybe through Tom Jamir, that commented on some of the things in what was going on.

DR. SCHUELLER: Okay, then I'll say on the last page there is this expanded data elements for primary and secondary species, and there is a request for fishery-dependent surveyed-derived measures of population abundance. I was just going to comment that you should ask for fishery-independent survey-derived measures of population abundance and not just the dependent component. In fact, I would argue you would prefer to have the independent component over the dependent component.

DR. GRIMES: Just a comment on wondering what happens to this request; in days of yore, when I used to be down here, there was actually an annual meeting between the council and the science centers with both of the councils to actually discuss their research and monitoring priorities and needs. You might urge them to re-up that.

DR. BOREMAN: The Mid-Atlantic, obviously, we do the same kind of exercise; but what we realized there is that there are several lists of research priorities, depending on what part of the council process you are dealing with. We have research priorities for our research set-aside program, research priorities for our cooperative research program, research priorities for the SSC based on developing the ABC Control Rule, and research priorities that come out of the stock assessments themselves during the stock assessment process.

We're forming a working group – again, another working group; but this time to collectively come up with as objective as possible a method for combining all these lists into one master list and going through a ranking process, which is – I forget the term for it now – but Mark Holliday

is heading it up for us. It is a formal process for having participation and ranking all the priorities, because we've got thousands of them. We want to boil it down to about four or five, which are manageable for the Center.

Again, in the northeast these go to the Northeast Region Coordinating Council, which is similar to what – it was fashioned after what the southeast was doing with the Regional Director, the Science Director, the Chairs of the Councils, and the Executive Directors of the Councils and the ASMFC. They look at this master list from both the Mid-Atlantic and the New England; and then they discuss what is doable there in terms of overall priorities for the region that affect the Northeast Center.

DR. SEDBERRY: Just to add a little to what Church was saying; back in the day when MARMAP was simpler, it was just MARMAP, there was an annual MARMAP program review that Gregg used to attend and had council staff attend and would set fishery-independent research priorities for that MARMAP program every year, or on the three-year cycle that they were on back then.

DR. BARBIERI: Yes, suggestions for our region to perhaps revisit those same practices. Mike captured some of those notes and suggestions. We're going to consolidate them as part of our consensus report. Moving on to Agenda Item 25, the Council Work Plan Update.

MR. CARMICHAEL: This is an FYI. You were provided the planning documents of the council to just keep you up to date on the many amendments that are underway at any particular time and to make sure you're always aware of who is responsible for those amendments. If you have any comments or suggestions or what have you, you can always reach out to these individuals to convey them or to ask questions or to find out where things stand. There are no specific actions required on this; but if you had any questions or any suggestions, now is a good time.

DR. BARBIERI: Are there any questions, comments, or suggestions from the committee? I remember this being really a way to keep us informed of the progress, because we make recommendations when specific regulatory amendments are moving through the process. It is good for us to know the fate and direction of how things are going. It is something that doesn't generate too much in terms of questions. If you see something there that doesn't align with your expectations, it would be good to get your questions now.

DR. GRIMES: A question I probably ought to know the answer to, but what is the plan or progress to implement the stock assessment from SEDAR 38 king mackerel? In particular I was thinking about those mixing zones and so forth.

MR. CARMICHAEL: Kari, the status of the king mackerel from acting on the last assessment, changes in the mixing zones and all that.

DR. MacLAUCHLIN: That would be Amendment 26 and the councils are reviewing that in June; both of them. It is just finishing scoping, so that probably won't be implemented until some time next year.

DR. BARBIERI: If no other questions, we move on to our Agenda Item Number 26, which is other business. Any other business that committee members would like to put before the committee for consideration or discussion? Seeing none; we move on to our Agenda Item Number 27, which is our second round of public comments.

MR. HUDSON: Rusty Hudson; I'll try to be able to speak about a couple of these things. It came up about the stock assessments incorporating things like climate variability, environmental variability, habitat variability, changes, whatever, versus the uncertainty. We know that certain species – we've tried to incorporate like in king mackerel assessment recently some of these changes.

We need to know how they respond to environmental gradients such as how the king mackerel are dependent on temperature regimes. Ben spoke to that several times. I figure that since the South Atlantic Council is going to be pushing forward with ecosystem management, these types of things, as we go into these assessments, are going to be really dependent on our knowledge.

When I was speaking with Mandy down at MRIP, the need for being able to get bottom temperatures, understand the thermoclines at various times of the years, and all these changes are extremely important; but somehow there has got to be an effort that is underway to do that. With the ABC flexibility and stuff, we like some of those ideas of being able to construct like the length-base stuff.

Going back to the rumble strip; the rumble strip, when we looked at the king mackerel and we had done the assessment; of course, we're waiting to get the changes incorporated here. Golden tile, we are at the end of our projections now. Wreckfish, we did some stuff. There are ways to somehow try to be able to work into that.

I think what John had to say that Mid-Atlantic is only sort of getting – so I think the South Atlantic can just take the lead with what we can do down here. As an example, we know what we need to do. We've got a lot more fish stocks down here and just not enough money, analysts, data, whatever excuses that we've been having to deal with for several years running.

Now on a different note, I'm part of a sixth generations of fishermen, watermen, out of the central Florida area, dating back into the 1800s. I was very fortunate that my grandfather was able to teach me a lot of things. I was raised to partyboat/headboat since the early sixties. During the seventies, when we had the voluntary surveys to fill out as mates, I was participating in some of that; depending on if you were first mate, second mate, third mate.

By the time we got in the seventies, we had more from the 20 passenger vessels into the 40 to 60 passenger or 80 passenger vessels. When we got into the seventies, we got into stringer fish, we got into situations of not being able to do anything but tend to our customers, and then get around to trying to fill out that on the way in usually, at least for myself on the boats I was on.

Of course, it could have been a captain doing it, it could have been the first mate, second mate, or third mate. The bigger fish were a lot easier to monitor. Once I was captain on headboats and stuff and filling out the stuff myself, I still tried to be responsible to that, but it was a difficult situation dealing with that many people. It truly was.

Now, a boat with 20 something people, it would have been a lot easier. We brought up this stuff back in the sea bass assessment. This document that then had to be reintroduced into the red snapper to try to kind of raise a red flag about being overly dependent on historical data that had this kind of variability; so we tried.

Now once we got into the mandatory reporting phase, about 1992 and on, it became a different kind of situation and people tried to work with it better. Now, the last thing that, of course, has been on my mind since I was an unofficial observer at SEDAR 32, the blueline tile/gray triggerfish thing.

I am going to speak to the bait sealer called blueline tilefish. It was a bycatch to everything I did. I was very fortunate to fish the deep-water fishery since the seventies; my granddaddy done it since the fifties. Many a time we went out there it was like when we had the cold water effects inshore and you couldn't get anything to bite.

Once we got to the big ledge, the west edge of the Gulf Stream, we would be snowy fishing; we get further off and we get to the golden tile in the mud flats. Well, golden tile and blueline tile was always generic tilefish in the Florida database back in the early eighties. In '81 the bottom longline came into use.

There were a lot of landings of golden tilefish generically called tilefish. You've got a 3 million pound spike going on in the blueline tilefish database that is in all likelihood golden tilefish. I believe that has caused a big problem on both assessments by not having that data correctly monitored or visualized.

I've talked to Steve Brown about this, who you know is our bean counter down there; '82 through '84, that period with that big spike needs to be modified somehow and to be able to re-deal with this blueline tilefish, because that will make a big change. You will find that it is jut probably going to be like that 30 percent of stuff that Wes Patrick just brought up that everybody thought was overfishing/overfished. You can probably find out that it is a healthy stock.

I found it was a healthy stock. But when we shifted from the 200 to 300 foot where the blueline tilefish are off of the east coast of Florida; we went out and we started finding the snowy wrecks, exclusive, large, probably male snowies, no blueline tile, and that would be in 300 to 650 foot of water.

Sometimes we get some golden tile, because you get off out in the mud flats and there they were. But blueline tile, golden tile, we've got some issues that need to be resolved there. I don't know how you do it with an update. But again, part of what we just saw yesterday with the update on mutton snapper; there is a little flexibility, but our standard update or assessments does give us more flexibility to do that. That is what I'm trying to suggest.

When we go forward with this blueline tilefish situation, we're already 600 percent over for the allocation for this year on the commercial landings because it got ratcheted down so far. The fact that we're able to catch those things – I would say when I caught 2,000 pounds of snowy grouper in that 2 to 300 foot; I would catch 10 percent blueline tile. Unlike what Michelle and them monitored to the CRP up north of Hatteras; that was clean blueline tile, no snowy; that is a big difference.

The whole fauna changed, the habitat and everything, and I have hoped that since I gave all these numbers, so MARMAP, SEFIS, and everything that the deep-water monitoring could be done. Again, reintroduced that to Marcel, and so they're going to try to do it with the 20 hook on the steeples for Kitty Mitchells, looking at the Warsaws, trying to deal with this blueline tile phenomenon. This stuff needs monitoring, because we can't keep going on and trying to make a mountain out of a molehill; and that is what the blueline tile is. Thank you very much for putting up with me.

DR. BARBIERI: Yes, thank you for that, Rusty. I know that Chairman Hartig also had some comments that he would like to make and this might be the appropriate time.

MR. HARTIG: Just to follow up on Rusty; I lived the history of that fishery as well, and I have some concerns as well with that spike at that time. The concern we had this morning – Luiz mentioned this morning at the beginning of the meeting that we had had a short meeting talking about a concern that had come up with me and some others.

I didn't have the numbers at the time to look at; I had Mike run the numbers. The concern was how does the SSC reconcile the current projections with the substantial landing increases currently observed throughout the South and Mid-Atlantic. I went back and asked Mike to run some numbers.

I'm not going to give you – you can have them if you want them, but I'll just give you the total. The total is 561,342 pounds that were landed in 2014. Your MSY is 226,500 pounds, so you are well over 2 point something times greater than the MSY for the catch of that year. From a fishermen's standpoint, you wonder how that much catch can occur out of a stock that was assessed just a couple of years ago.

And it is troubling, basically; it is troubling. I hope and I would ask you to put some discussion in your document about the projections and how the current landings relate to those projections. That is all I ask you to do. I bought into the discussion on the first day. A lot of that makes sense. But still when you get to the projection part, if we could have some explanation for the public to be able to understand how these relate to the current landings, that would be helpful.

DR. BARBIERI: As we discussed earlier, one complication that we have for including this as part of our report is that the committee was not provided the projections' document at this meeting to go and review in detail. When we reviewed those projections before, yes, we had serious concerns ourselves.

But we couldn't find a way to get those projections redone, I guess, in a way that they were addressing those concerns in a timely manner. It was something that there are data limitations and there is a whole number of things. I think your comment is duly noted. We'll be discussing this hopefully at the June council meeting some more and maybe revisit if necessary. For this meeting, I find it difficult for us to have that discussion in too much detail.

DR. BOREMAN: Yes, that is my impression too, because I would like to review the numbers. What if you sent a letter to Luiz, a memo as the Chair, and have a specific information request of the SSC and attach the projections, what you're looking at, and ask for SSC's advice. Maybe we

can have a webinar or something prior to the June meeting and give you feedback. But to add it to the report now, I don't think is appropriate.

DR. BARBIERI: Very good suggestion. I saw a lot of people around the table nodding their heads in agreement. JC was saying, hey, we can actually look at a calendar, since we have most everybody around the table here, and try to come up with some potential dates for the webinar. Yes, a week after Memorial Day.

MR. CARMICHAEL: Our next thing is to review the recommendations. We left the blueline tilefish comments a little hanging, I felt, certainly gray to most people who are out in the world listening. We can hit on this some more when we do that. I think we need to clarify. We discussed updated assessments for blueline. You could discuss other things that could be done. That is a perfect place to bring this issue back to bear.

DR. BARBIERI: I see Mike there trying to capture some of the comments and suggestions. Then we I guess rewind back to our blueline tilefish discussion. You may remember the day before yesterday we mentioned that we would be revisiting that statement after we had some more time to think about all of this and provide a more cohesive consensus statement that is perhaps more informative.

While we wait for that to be completed, let me first thank Steve Cadrin and Churchill Grimes for volunteering for SEDAR 41. Churchill was already signed up to do it, but he reiterated his interest in participating. Steve Cardin volunteered to replace Jim Berkson's position as an SSC reviewer for SEDAR 41, so many thanks for that. I remind the committee that we're still trying to get some volunteers, SSC participation, at SEDAR data best practices.

DR. BELCHER: I talked with Julia, and tentatively I can offer to sit on that. I've just got to find out – we have red drum going on with ASMFC right now, so there is a pending date in there for us to get together as a Stock Assessment Subcommittee again. I am not sure what the overlap will be, but you can put me down for it.

DR. BARBIERI: That is wonderful news, Carolyn, thank you. Are there any other members? This will be the week of June 22 in Atlanta. I talked to Julia offline as well and said I am going to try to be there. I have some family conflicts during that time, but I am going to try to get those resolved and be there.

We will be discussing this with Dustin and some of the other members of our stock assessment team and see if we can get at least one other person from the stock assessment team to be there, and provide some input on those data issues there. I am going back to Agenda Item Number 6, geographic range of the SEDAR 32 tilefish assessment, when we had those presentations; Attachments 4, 5, 6, and 7.

You will remember the action items that we were asked to address; recommend stock geographic range represented by the SEDAR 32 assessment; consider assessment schedule and research plan implications for blueline tilefish. Of course, we are trying to expand our input now to look into the projections and we're going to address this separately through a webinar meeting; but perhaps we can scroll up and try and read through.

DR. DUVAL: Since the council's next actions are contingent upon your decision here, I guess I was thinking it might be appropriate to give you a sense of how I interpret what your decision was and make sure that my interpretation matches up with the decision that you made, so that there is no confusion or miscommunication about what you decided.

My interpretation of the discussion and your decision is that biologically speaking you believe that blueline tilefish is at this point a single population coastwide; and that therefore after reexamination of SEDAR 32 and the data inputs and additional information based on your discussion; that the stock assessment applies to that population coastwide.

Therefore, that application of SEDAR 32 to the population coastwide impacts the ABC recommendation that you provide to the council. My interpretation is that we are still under a single ABC for the entire population. You had a lot of discussion about management division and management boundaries and whatever; and that is a separate conversation for the councils.

We take ABCs and we divide them up all the time in the Gulf, et cetera. In this regard that is not different. I just want to make sure that I'm clear that right now everybody is playing on the same ABC, whether you're a fisherman in the Mid-Atlantic or you're a fisherman in the South Atlantic

Clearly, if it is a coast-wide ABC, then fishing activities in one part of the population range impacts fishing activities in another part of the population range and vice versa. I just wanted to make sure that I was clear on that interpretation' that it's biologically a single population' therefore, a single coast-wide ABC SEDAR 32 still applies.

DR. BARBIERI: Yes; that is very helpful to get that perspective from the management side of things. I see John Boreman with some comment.

DR. BOREMAN: Generally I agree with that. I think the most convincing argument to me was that the fish that are being landed in New Jersey are coming from an area where those same fish were being landed elsewhere prior to that. It is where the landings are; but what is more important is where those landed fish are coming from, and that is the same area that we've seen in the past.

The other aspect – and that to me says that, well, the assessment is probably appropriate then for those same fish, because it is the same fish that was in the assessment in 2012. The other important thing – and you said management allocation is not an issue here; but I think the SSC should go back with the recommendation that the council should seriously look at that 2 percent set-aside of the ABC for fish north of North Carolina and strongly reconsider coming up with a larger number than 2 percent of that or looking at that 2 percent in light of what we're seeing in recent years in terms of where the fish are being landed. Thank you.

DR. GRIMES: I just wanted to say that Michelle's description is exactly what Steve Cadrin and I would say; and we were both, as you know, SEDAR 32 reviewers. We discussed this stuff at some length and looked at our reports. That is totally consistent with what we think, I would say.

DR. DUVAL: I guess just one comment with regard to where the fish are being harvested versus where the fish are being landed – and perhaps this is more appropriate under public comment – I

think there was some implication that fishermen are just all going to the same place and that fish harvested off the DelMarVa Peninsula were being brought back to North Carolina to be landed or that fish were being harvested off North Carolina once the season closed and then were just being shuttled up to New Jersey to be landed.

I think it is important for you to understand maybe just the mechanics of how the Southeast Logbook works and perhaps the VTR reports as well. The Southeast Logbooks; clearly there is overlap as we noted between the VTR grids and the Southeast Logbook Grids. In the Southeast Logbook fishermen are only allowed to report a single area where they are harvesting fish, where the majority of their fish come from.

Depending on where your port is, you may be fishing in a single statistical area, you may be fishing in two statistical areas; but if you are sort of on the border of several, you might be fishing in three statistical areas; but you only have one choice, and that is a 60-mile block. I think the other thing I would say is that fishermen are not going to go any further than they absolutely have to to harvest fish and bring them back.

The economics just dictate that. People aren't just going to walk out the door and run an extra hundred miles somewhere to go harvest fish if that same fish is available in their own backyard. While I agree that the location of where fish are being harvested matters, I felt like there was a little bit of misperception with regard to I guess the nomadic nature of the longline fleet. I spoke to Kevin Craig a little bit about this. Thank you.

DR. ERRIGO: I just wanted to make clear that Kevin was reporting on the Northeast VTRs, I'm pretty sure. In my document that I provided; that is Southeast Headboat Logbooks. I can't say for a hundred percent that these particular VTRs are reported this way; however, I do know that in the northeast commercial logbooks that are filled out are a little different than the southeast.

They are required to fill out a new line for each statistical area that they fish in. In each trip if they fish in two statistical areas, they actually have to have two entries on their logbook; but they still area are only saying so I fished in this statistical area and in this statistical area and here is what I caught in each one. The statistical areas are still huge.

It is not very fine-scaled data, as Michelle was saying. I cannot say for sure that is how these VTRs are filled out, because I haven't seen them, but I do know that in the northeast in general that is how commercial logbooks are filled out, federal logbooks are filled out. I don't want to say for sure that is how these particular ones are done, but I do know that they are done that way.

DR. BARBIERI: Actually I want to thank everybody who approached the table and provided input, because I think to me it is really crystal clear now of what the committee consensus was on this topic. I had offline discussed this a bit with Steve Cadrin, and he told me that he had discussed this extensively with Churchill Grimes.

Steve actually had put together a bit of text that summarized what they as reviewers had come to on this, and this agrees very much with what we are saying here. At least from an SSC perspective, I think we are very comfortable now with the tone and the content of our consensus statement.

MR. CARMICHAEL: Before you leave this, what are your recommendations for the next assessment? Right now this is scheduled to come to you in January 2017. If you think there should be an assessment done sooner, it kind of needs to start here with making that request.

DR. SCHUELLER: I don't see a problem with January 2017, but I also say I don't see how it possibly can move up given what is already on the schedule.

MR. CARMICHAEL: Yes, I know, but the reality is we tell this body to make a recommendation based on what you need, based not on what we may think is feasible. That is a discussion for the council and the Science Center Director and the Steering Committee to decide what the priorities are. If you have concerns with this assessment, if you have concerns with the projections; the council expects you to live up to that responsibility and tell them if you think this needs to be done sooner.

MR. VAUGHAN: I'm just thinking of the realities of stock assessments. I think we're seeing a huge in the landings in 2014, even though it seems that actually this has been going on for about a decade; just shifting a little bit in the locations. I presume the desire would be to probably have 2015 landings in there. That would then put some limitations on how early you can move it up. You don't have the data probably until mid-2016. You are getting close to that January 2017 date in terms of actually being able to have two years of this new regime, if we want to call it that.

DR. BOREMAN: Yes, that was my comment as well; 2017, it sounds far off; but with all the groundwork you have to lay to do an assessment, it may be timely for us and that may be as soon as – the other point is having it available in January; and if we're not meeting until April or May, that could be an issue. Again, maybe there could be a special meeting of the SSC via webinar when this is available that we can discuss and laser focus on blueline tilefish and not add it to 78 other species we need to deal with at these meetings.

MR. CARMICHAEL: I guess I just have to question the idea of new fishing regime when we said up above it is really not a new regime; that they are fishing in the same places. We are potentially being contradictory here.

DR. BOREMAN: I didn't say that.

DR. VAUGHAN: I did; and, yes, it is to some extent contradictory.

DR. BARBIERI: Well, we're going to get all of this reconciled in our report. That will be circulated by the full committee for your input and edits and we'll come up with something that is still that cohesive consensus of the group. I think we will be able to express some thoughts on the timeliness of the assessment.

We've made this recommendation I think once or twice before. I happened to be at a council meeting when the SEDAR Committee of the council looked at this and felt that in light of all the other priorities, this did not rise to the top or maybe it did at that stage; but then when it got to the SEDAR Steering Committee, they felt that other things would come as higher priorities. I agree with you expressing this again might be an important part of this process.

DR. ERRIGO: There is one other thing I just want to say about the prioritization of when this happen and whatnot. In the Mid-Atlantic, because blueline tilefish has not been part of an FMP and is not federally managed, it is also not sampled. So 2014, that humongous spike in landings that happened mostly in New Jersey; there was no TIP sampling or any kind of sampling of any of those fish, which is very unfortunate.

There is a chance they will put the protocols in place to sample fish for 2015. If they do, then you would want to include the 2015 data because it will have the length—at-age samples. If they don't, then I am not sure what will happen for the assessment in even that 2017 year.

DR. VAUGHAN: Then you hope that you have at least some of the catches from that same region being landed in North Carolina, and you've got samples there that you could then use as a proxy. But beyond that, it would be nice to have a year of data directly if indeed they do have another large landing in New Jersey.

DR. DUVAL: Just to remind everybody, blueline tilefish is closed commercially in the South Atlantic, so nothing is going to be landed. We have no data. It is not clear to me yet if the recreational fishery will reopen May 1st. The new regulations that went into effect as a result of Amendment 32 put in place a one fish per vessel bag limit from May through August for the recreational sector.

I think the Regional Office and the Science Center are crunching the numbers to determine whether or not that will actually reopen. But until those regulations went into effect and the recreational fishery was closed and the commercial fishery was closed, there were people fishing in North Carolina and catching those fish.

DR. VAUGHAN: That is going to be a complication that the stock assessment will have to deal with.

DR. BOREMAN: Yes; I'll put on my hat as Chair of the Mid-Atlantic SSC now and offer up assistance from the Mid-Atlantic SSC to participate in the assessment process. Probably what would help politically as well as scientifically if Chairman Robins can get a letter from Chairman Hartig inviting the Mid-Atlantic Council to provide some SSC expertise in the process because I think we would be very interested in the outcome.

MR. CARMICHAEL: That would be whenever this is reviewed in 2017. It is an update, so there is not SSC role there; so, yes, we could invite some of you guys to come when the assessment is reviewed.

DR. BARBIERI: Yes, very excellent; thank you, John. Then I think we are moving on to just some end-of-meeting reminders. Carolyn.

DR. BELCHER: I know I'm kind of coming in after the fact, but I was doing some thought process. While we were going over the Oculina, Ben's comments kind of brought it to mind. We had talked off mike about it seems like there is just this disconnect in understanding what the Oculina Bank was originally set up for and what the experimental zones are designed to do. When I went back to look at the document, I had asked Chip – I guess I'm used to the idea of these requests, when one AP requests from another, and this asking for this request to have

shrimp access; it seems like what the essence of the report is actually looking at have we met the goals of evaluating the experimental closed area and what is our progress towards meeting the objectives?

That kind of got lost in that document. I wouldn't have thought to go to that document to look for that response to that AP group. Going to the appendices to find out what the comments were from the group was helpful, because again it kind of showed their educational level on why the Oculina was originally set up.

It says in there that they weren't really sure what the impetus was for 1984's delineation of the Oculina Bank. To me that is like, okay, now they are basically saying we need the educational process. When you look at the information that came through in Section 6; that pretty much gave them all of that information that I think would help them understand all the impetus behind that as well as the justifications for why that exclusion applies.

It almost feels like again if I were looking at the title of that report; I wouldn't feel that response letter would be part of that report. That is more of again did we meet our goals and objectives? What are some other things we need to be thinking about relative to the experimental and research within that area.

I don't know if there is a better venue for getting that response out, but I do think that it would get lost for someone who is looking for that response. I don't think that document would be their first source to look for that. I don't know if that is the kind of input you were looking for, but that is kind of what I felt happened, at least for me, is that information is very pertinent to what those people were asking for, and I think it should be a little bit more in the forefront for them.

DR. BARBIERI: If I could ask you to be especially attentive to that portion of the report, Mike is trying to capture some notes, of course. We're going to be working with staff and pulling some of this stuff from that report; but if you could help articulate some of those, I think it turns out as a better, more complete, thorough consensus statement.

DR. BELCHER: My feeling – and again it is just a suggestion – would be making an appendix that is a response to the Deepwater Shrimp AP, but then make it more of a formal memo or whatever coming from one group to the other; so that way it just seems like there is more in-hand – you know, this is our formal retort to you on what is happening. It just makes it a little bit more clear that dialogue had happened on a more – not professional, but a more cohesive Council AP-to-AP level.

DR. BARBIERI: Yes, very good point. In wrapping up our meeting here, reminders that the final SSC report is due to the council by 9:00 a.m. on Tuesday, May 19th, so you are going to be hearing from me hopefully this coming week with a first draft. Then whatever you can do to help beef that up and refine and edit and revise, it would be much appreciated. Time is of the essence. Our next meeting is October 20th through 22nd right here; just a reminder that this should be in your calendar already.

MR. CARMICHAEL: Next meeting; we throw out the idea of a potential request that might come to review the projections and reviewing them over webinar. For you to do that legally. it has to be noticed in the Federal Register, which that adds about three weeks from the time we

can actually get something in before you can hold the meeting. We would be looking at probably – if we set something in on Monday, we can have a meeting the week of Memorial Day or the week thereafter.

If we're going to be serious about this, if we think this is something the council may ask, the chairman, maybe, if people can say a day in that week when you could do either morning or afternoon, we would have a chance of getting a Federal Register notice thing in on Monday and actually holding a legal meeting.

DR. BARBIERI: Let's just pull up our calendars right quick.

MR. CARMICHAEL: Memorial Day is the 25th, so how about Wednesday morning, the 27th?

DR. SCHUELLER: I prefer the first week in June, if possible.

MR. CARMICHAEL: That is a little bit tough for us simply because it is the week before the council meeting, but we could probably do it Wednesday morning that week.

DR. SCHUELLER: Otherwise, I'd be more amenable to Friday than Wednesday.

DR. BARBIERI: Friday the 29th works for me.

MR. CARMICHAEL: I'm seeing some nods for and against Friday the 29th.

DR. BARBIERI: JB, it would be kind of critical to have you in on this.

DR. BOREMAN: Yes, we have an NRCC meeting. I could do it Wednesday morning, the 27th, but that afternoon I've got to travel. Then all day Thursday and all day Friday I'll be involved with that; the following Wednesday, the 3rd of June works for me.

MR. CARMICHAEL: The 3rd of June in the morning?

DR. BOREMAN: Or afternoon. The whole week is free, basically.

MR. CARMICHAEL: Okay June 3rd, 1:00 to 3:00 p.m.?

DR. BARBIERI: 1:00 to 3:00 would be better.

MR. CARMICHAEL: Everyone likes that best?

DR. BARBIERI: June 3rd it is; shoot for 1:00 o'clock in the afternoon. We're going to be provided some documentation and action items and perhaps terms of reference that can be developed for this review and analysis. Many thanks to all of you. I think this was along agenda, a lot of tough issues for discussion, and it was great to have everybody's full participation and input.

I look forward to putting together the report, as always. Also, our special thanks to staff that put together just a great briefing book. The preparation for all of this is like planning a wedding and

you have to think about all the multiple parts. It is really something that for us and for some of us who are in other SSCs and you see how much we can get out of a well-prepared meeting. I really appreciate all of that and with that I guess we are adjourned.

(Whereupon, the meeting was adjourned April 30, 2015.)

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SSC 28 APR 15

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