SOUTH ATLANTIC FISHERY MANAGEMENT COUNCIL

SCIENTIFIC AND STATISTICAL COMMITTEE

Crowne Plaza Hotel
North Charleston, SC

October 22-23, 2013

SUMMARY MINUTES

SSC Committee

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Dr. Jim Berkson
Dr. Jeff Buckel
Dr. Scott Crosson
Dr. Tracy Yandle
Dr. Sherry Larkin
Dr. Carolyn Belcher
Dr. Steve Cadrin
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Dr. George Sedberry

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Mel Bell

Council Staff:

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Julia Byrd
Myra Brouwer
Dr. Mike Errigo
Dr. Julie Neer
Kim Iverson
John Carmichael
Julie O'Dell
Dr. Kari MacLauchlin
Dr. Brian Cheuvront

Observers/Participants:

Rusty Hudson
Alex MacCall
Dr. Todd Kellison
Tom Carruthers
Dr. Erik Williams

Other Attendees Attached

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The Science and Statistical Committee of the South Atlantic Fishery Management Council convened in the Crowne Plaza Hotel, North Charleston, South Carolina, Tuesday morning, October 22, 2013, and was called to order at 9:00 o'clock a.m. by Chairman Luiz Barbieri.

DR. BARBIERI: Okay, everybody, good morning and welcome to the October 2013 South Atlantic Fishery Management Council's SSC meeting. We have a full agenda. John, if you are ready, I think we're going to get started. The first order of business is introductions.

DR. LARKIN: Sherry Larkin, University of Florida.

MS. LANGE: Anne Lange.

DR. SEDBERRY: George Sedberry, NOAA Sanctuaries.

DR. CADRIN: Steve Cadrin, University of Massachusetts.

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

DR. BELCHER: Carolyn Belcher, Georgia Department of Natural Resources.

DR. DUVAL: Michelle Duval, South Atlantic Council Liaison.

DR. REICHERT: Marcel Reichert, South Carolina DNR.

DR. BARBIERI: Luiz Barbieri, Florida Fish and Wildlife.

MR. CARMICHAEL: John Carmichael, South Atlantic Council.

DR. ERRIGO: Mike Errigo, South Atlantic Council.

MR. COLLIER: Chip Collier, North Carolina Division of Marine Fisheries.

DR. BUCKEL: Jeff Buckel, NC State University.

DR. GRIMES: Churchill Grimes.

DR. BARBIERI: Then proceeding toward the next item on the agenda; review and approval of our agenda. Are there any comments or questions regarding our agenda? If not, the agenda is approved as it stands. The next item is approval of our meeting minutes from the April 2013 meeting.

I am confident that all of you have read our meeting minutes and reviewed the contents. Are there any suggestions for modifications or concerns or comments? Hearing none; we accept the April 2013 meeting minutes as they stand. Next on the agenda is the first opportunity for public comment. I see Rusty Hudson back there. Rusty, would you please approach the table and speak from the microphone, please.

MR. HUDSON: Thank you, Chairman Barbieri. Rusty Hudson, representing East Coast Fisheries Section. I trust that you got our overview comment and our snowy grouper comment from Dr. Barile through Jimmy Hull. Essentially, when we opened up with the overview, we did speak of a non-SSC situation with the smooth dogfish; but we had concerns that the HMS doesn't have to deal with an SSC, nor do they deal with the AP in order to choose what to do for next year.

With that said; moving on, we do like the fact that a physical assessment workshop has been scheduled for the red snapper. That made us feel a lot better that we could interact as stakeholders with the analysts during the most crucial times during the assessment itself. We look forward to the gag grouper; hopefully, it is still on time for next spring.

After this federal delay, I am really hoping we got them all back to work. With the SEDAR 38, joint king mackerel, we look forward to participating in that in the same building in December. Hopefully, we can bring some stuff to the table that will be useful. As far as the fishing level recommendations and things like that; I have to kind of leave that and defer to the scientists.

The Spanish mackerel stock projections, we do look forward to the reconsideration of the ABC. Having been involved with both the blueline tilefish, SEDAR 32, and snowy grouper, SEDAR 36, of course, we didn't really have a commercial representative at the snowy grouper situation until later in the process., and it was kind of intermittent.

There was no physical meeting. We feel that both kind of made some assumptions about the snowy grouper population that may not be reflected in final results. But hopefully since this is the review process for a standard assessment, from what I understand since the Center of Independent Experts are involved, that is a good day.

We'll see how that progresses forward, and hopefully it will be a positive development for the fishermen. Data-poor assessments; it looks like we're going to have a presentation on that. That is a very important thing, particularly when you see the complexes that keep getting shut down like the jack complex and stuff like that.

Otherwise, the future amendments, we do have two things that were sort of contentious on the public level. That will be the Amendment 22 for the recreational tags and the other is the Regulatory Amendment 17 on marine protected areas. We'll see how all that works out. Our whole idea, having been part of the MPA Expert Group, was that we would be talking about modifications and reorientations of the existing eight MPAs. Then hopefully research and monitoring, something that was lacking in Amendment 14; from now on they will make sure that all that takes place. Thank you very much, and we look forward to a great meeting.

DR. BARBIERI: Thank you, Rusty; we appreciate your comments and input. Moving on to the next item on the agenda, we have SEDAR activities. As a reminder, the documents associated with this discussion are Attachments 2 through 7. John Carmichael is going to lead that discussion and provide us an overview of the issues for discussion. Then we'll review the action items.

MR. CARMICHAEL: The first item is to discuss SEDAR 41. This is going to be red snapper and gray triggerfish. To bring a couple things to your attention; gray triggerfish was worked on

and ran into an issue with the aging. The recommendation has come from the Science Center, with support of the Steering Committee, was to include gray triggerfish with SEDAR 41 rather than to keep it out there as part of the prior SEDAR it was associated with.

We're not really sure when that was going to wrap up. It is probably going to mean going back, obviously, to the data stage given the time that had passed and the issue with the aging that still needs to be worked out. It will be a little bit different now moving ahead. Instead of being red snapper and red porgy, it is going to be red snapper and gray triggerfish.

The other issue is a little bit of a delay in the start of it to get the video index data wrapped up, so that you have that available for consideration in the assessment, so it is going to start in mid-2014. The analysts requested additional time to work on this due to the issues that there have been with red snapper in trying to move into a realm there where we have very, very restricted catches and no catches for a while.

It is going to affect how they assess this stock; so that and bringing in the new index they asked for more time, which was supported; but the bottom line being essentially that you will see that assessment in October of 2015. You have the terms of reference and the schedule for consideration. I think we'll just maybe take these things piece by piece, Luiz.

I think we will start with the schedule. First, this is the schedule that has been reviewed and accepted by the Science Center folks who will be the lead analysts on this. Are there any comments on this schedule? The next step after you look at it will be approval by the council in December.

DR. BARBIERI: Any comments, questions or suggestions for John regarding the SEDAR schedule? No.

MR. CARMICHAEL: Then the next item is the terms of reference. It is a little bit more complicated. We have two versions for you to look at for the terms of reference. You have the core ones that are from SEDAR. The way this works is there is a set of preapproved benchmark, standard and update terms of reference.

These go out to the analysts and others for comment and review. If there are relatively minor changes, we will just bring them right into you guys and you comment on them, and then the council ultimately approves them. In this instance, there were some more significant changes suggested following the Science Center review.

It is primarily within the Review Workshop Section. That is why this was highlighted within this attachment. It is just some different wording and a little bit different approach to how the terms of reference have been constructed. We wanted to get your feedback on this and really get a sense of what you think about these changes before deciding what goes forward to the council.

DR. BARBIERI: Okay, folks, any comments or questions regarding the terms of reference? I think they were in the same document, right?

MR. CARMICHAEL: It is all in the same PDF. I was going to get Mike to pull up the other version – yes, Letter A there; pull that up and you can sort of look at them side by side, which

may help to give you a sense of what the wording differences are like. Really, in a lot of ways it puts under each of these – like Number 1 is data evaluation.

The Item A in the original is are data decisions made by the Data Workshop and Assessment Workshop sound and robust? In this case here, in these alternatives, which are highlights more of what are the strengths and weaknesses of the data decisions? There are items in the original – like in the methods, Number 2, are the methods scientifically sound and robust and then the alternative proposed by the Science Center that says what are the strengths and weaknesses of the method?

The direction is more towards to take away from the review panel kind of giving any sort of opinion or statement that, yes, you know it is sound. Maybe they would say we don't think this method is sound. In the alternatives, as you see, they just comment on the strengths and weaknesses of the method. They comment on the strength and weaknesses of the configuration.

They are never put into the position of saying, yes, we think it is sound and robust. We ended up with this language about are the methods scientifically sound and robust as a way to pull back from just giving them more of a pass/fail type of situation. We don't really want that from a review workshop; we want to hear what they think about the assessment.

But then at some level you also I think do want – at least when we created these, we wanted some feedback from them, yes, that this does meet the accepted standards and we think it is appropriate. The alternative really pulls further away from that and I think that is probably the discussion you guys should have.

DR. BARBIERI: Yes, I agree. I see the advantage of looking at the strengths and weaknesses of different components of the assessment. In many of the reviews that I have participated, the Chair has actually asked the review panel to point out strengths and weaknesses. I agree that in this case leave us a little bit more of a gray zone in terms of the soundness of the assessment and more of that qualitative thumbs up or thumbs down on what is there.

MR. CARMICHAEL: Yes; and in the Version A that is the staff modification of this, we included a phrase – like under Item 1 there it says to include discussion of the strengths and weaknesses; put it up there in the main number, assuming that then applies to A, B, C and D. The sticking point that is sort of left is in Number 1 and Number 2, that Item A; do you ask them to say if the decisions and methods are sound and robust?

DR. BARBIERI: John, just to clarify a little further; do we have any kind of narrative description of why the Science Center has proposed those modifications or they just sent in the edited TORs?

MR. CARMICHAEL: Yes the justification was to not give the reviewers a pass/fail opportunity, to avoid them making a judgment call on aspects of assessments; to just have them comment, really restrict them to a general discussion of strengths and weaknesses and not have them give you any judgment or pass/fail.

DR. BARBIERI: Of course, I'm going to want to hear a little more discussion from the committees. Personally, just to get the ball rolling, get it started here, I think that this is a

fundamental enough change that it might warrant review by the actual SEDAR Steering Committee.

MR. CARMICHAEL: I agree with you exactly. That is why you were presented both versions and that is why I wasn't comfortable just making these changes outright in this version, because the draft terms of reference that we start with were approved by the Steering Committee. A group of people worked on those and we came up with the current version, which got further away from any sort of judgment and pass/fail.

There is nothing in the current version that says do you accept or reject this assessment? There is nothing in there that says that. They do ask for a little bit of judgment. I totally agree with you; the Steering Committee should probably weigh on this. If you support this, then it is something that you could endorse for SEDAR 41, and then we'd have the Steering Committee discussion that might make it part of the default in terms of reference.

DR. BARBIERI: Are there any thoughts and or comments from the committee, please? Just to add a little bit more of my opinion here – Marcel, go ahead.

DR. REICHERT: Well, my question was does the question whether an assessment is accepted or rejected go away entirely, or is it now up to the SSC, after their review, to determine whether an assessment is acceptable or not?

MR. CARMICHAEL: I believe it lies where it has, which is with the SSC. You are the ones who make the recommendation to the council that this information is acceptable for management and you use it to base your recommendations. I think that stands either way; because as I've said, the existing terms of reference were constructed to not give them a pass/fail, accept/reject opportunity. The differences are primarily are you going to ask them if decisions are sound and robust, which I guess you read as are you going to ask them for some opinion of whether or not they find what has been done appropriate and acceptable.

DR. CADRIN: I don't know how well it fits into accept or reject, but National Standard 2 Guidelines now are that the regional peer review process determines best scientific information available. Now, the SSC can deviate from that decision with justification, but that might be the phrase or wording we want to keep in mind; rather than accept/reject, identify the best scientific information available.

DR. BARBIERI: That is a good point. My view, having participated in SEDAR for quite a while, that this latest set of revisions to the review workshop terms of reference I think already softened a bit the role of that review in terms of thumbs-up, thumbs-down. I was happy with the phrasing as it had been set. I would feel uncomfortable really going to this new set of terms of reference personally until it is further discussed by the Steering Committee.

Let me phrase this a bit differently to see if we have a group consensus here. Would anybody disagree with that approach; that we retain the existing set of terms of reference; however, we give the Steering Committee, of course, the flexibility to reevaluate at their next meeting and discuss and document their perception of this. Would anybody disagree with this?

DR. JIAO: Well, I am not disagreeing with this suggestion, but I can see the point to move from wording in A to this new wording of it. The previous wording makes people always think the answer is yes or no; but the right wording, you needed to answer more specifically which decision made is actually robust. That is my view of it. I can see some of the details may need to be further polished later.

MR. CARMICHAEL: I wonder if a comment to what Steve brought up about the National Standard Guidelines and saying that the regional peer review could provide guidance on the best scientific information available. Previously that was the role of the Science Center in all of these steps from the peer review through the SSC were advisory to that. But if that responsibility is going to shift to this peer review panel, it is within your rights and abilities to add something along those lines to the version that you accept.

DR. BUCKEL: Yes, I think what the Science Center has done – and I commend them – it is something that should have come from the SSC to improve the terms of reference. The fact that the Science Center is doing the assessments; they could take the easy way and say we just want the yes or no and we don't want strengths and weaknesses. I commend them for asking for more detail and feedback from the reviewers.

DR. BARBIERI: But just for the sake of discussion, may I add a twist to that, Jeff? I think that we could actually end up with a win/win situation, have the best of both worlds if we added that kind of language on the right to the guidelines that we send to the review panel. There is a set of guidelines and instructions that go to the review panel that provides them with some guidance on how to review and how to structure their comments.

We could be more explicit in those guidelines about pointing out the strengths and weaknesses of the assessment, but still retain the sort of yes-or-no perspective there on the left. If the Review Panel feels that the data or the analysis is not acceptable and not robust enough, they have that discretion. Just as a suggestion.

DR. JIAO: I think this is a good suggestion.

DR. YANDLE: Then the goal would be we would be going to keep a firm yes or no, but a more nuance discussion in the record of why; is that correct?

MR. CARMICHAEL: Not quite, because the version that you have there on the left, Version A doesn't ask for a yes or no. It asks for some opinion with the statement of are methods scientifically sound and robust. It is not necessarily saying a yes or no on the overall assessment. At least that was the intent that it is not saying a specific yes or no.

There is nothing in the terms of reference that they see now that says do you accept this assessment; but it sounds like with National Standard 2 you might get a little closer if you put in there is this best scientific information available. If you ask them a question like that, you are probably going to get a yes or no answer at least at the very start and then a lot of caveats. If we went that route, I think we are closer to asking them for a yes or no.

DR. CADRIN: Yes; and typically in a SEDAR there is not one option available. There are multiple models; there are multiple configurations and often what comes from the assessment

workshop is identified as best scientific information available, sometimes not; sometimes the peer review will. I think it is not just a thumbs-up/thumbs-down to the entire document. It is an identification of which of those should be used for catch predictions.

DR. BARBIERI: Mike, are we clear on what our consensus statement is for this; not to put you on the spot or anything.

DR. ERRIGO: My understanding is that you're leaning towards more of a melding of these two, where you want some more of a do we think these methods or analyses are sound and robust – yes or no. Why or why not; what are the strengths and weaknesses of each? I'm gathering you also may want to consider putting in language about the National Standard 2 Guidelines as well.

DR. BARBIERI: That is exactly it; and then all of the above would be sent to the SEDAR Steering Committee for their evaluation.

DR. CROSSON: Just because SEDAR 28 is on the agenda, the Spanish mackerel projections, it reminded me that we usually ask two basic questions in terms of utility for the SSC out of any kind of SEDAR. One is, is overfishing occurring and the other is what is the status; is it overfished or not?

Is that something we would want to have separated out in terms of best scientific information and what we're asking the Review Committee for; because with the Spanish mackerel one, they didn't have an answer for the second one? They had an answer for the first and now that is coming back, because we have to revisit it during this meeting.

DR. BARBIERI: But those two questions are still there about the biomass and exploitation status of the stock.

MR. CARMICHAEL: This slight suggested change – and this is Term of Reference 3 in the Science Center Version, Items B and C is adding to the head of that phrase "based on management's choice of MSST". The original one just says is the stock overfished. For the overfishing, it is based on the estimate of FMSY or its proxy is the stock undergoing overfishing.

That is just adding a little bit of clarity. I think it's been inferred that they base it on MSST, of course, if they have one. Now, I guess in the situation of if you don't have an MSST recommendation from the managers, which you often don't on a stock that has not been assessed, a review panel could see that and say I can't answer that question because I don't have an MSST.

To me that is the risk of being that specific especially in a benchmark, which often is a first-time assessment – versus if we say is the stock overfished, we allow them to take all the information that they have and give you that determination. If we didn't get an MSST, they may still be able to say whether or not they think the stock is overfished or overfishing is occurring, which is why the existing language was kind of softened and not tied to the reference points, because we had situations where reviewers said, well, we could probably say something about overfishing just based on the collective information, but we don't have an estimate of FMSY, so we can't really give you the quantitative.

But they would give you the qualitative, and that is what we desired. In the alternative this pushes them much more to the quantitative and it ties them to the reference given by management. Now, I think one reason for that is to get away from this perception that reviewers who are not familiar with the federal management system sometime make recommendations that are incompatible with it.

Personally I've never felt that was a major problem, because what the reviewers give you is a recommendation. The choice of MSST lies with the council. You give recommendations to the council on MSST. It is really irrelevant if a review panel were to recommend an MSST that maybe were inappropriate, because then you have grounds right there to reject it because it is inappropriate with the Magnuson Act. It has happened.

Sometimes review panels have said here is an idea to consider. It happened with the original gag assessment and it caused some consternation; but in reality it was a simple enough choice for the SSC – and this group did – to say, well, that was a nice recommendation but we simply can't do it, and here is what we recommend to the council.

You are not bound by a review panel choosing something off the wall to make an overfishing recommendation. I don't see that is really being necessary, and I see it being potentially problematic when we can't get a quantitative estimate. We know a lot of times the qualitative information is helpful.

DR. BARBIERI: Thank you, John, for the clarification. I think we are ready to move on to the next action item.

MR. CARMICHAEL: Gags and update assessments – and these are the terms of reference. These are straightforward. Again, there is a set of default terms of reference, which are then passed around amongst the analysts for comments in particular to see if there is any new information, surprises, what have you; issues from the old assessment that you might want to focus in on this one.

There are also in this case specified projections. We're asking for P-stars of 30 percent and 50 percent, 75 percent of Fmsy, and then, of course, if the stock is found to be overfished; then the suite which allows you to bracket rebuilding alternatives using F-0, F-current, F-rebuild and Fmsy.

The P-star there; we always ask for 50, and the 30 percent is based on the SSC's recommendation for gag back when we put together the P-stars and the ABC Control Rule initially, but it is not bound to you. Obviously, you may recommend something different when you see this; just a starting point.

DR. BARBIERI: It sounds pretty satisfactory to me. I don't see any reason personally to not accept this as suggested. Would anybody from the committee have an additional comment, question or suggestion regarding the gag grouper update TORs?

DR. REICHERT: Just a quick scheduling; when would this come to the SSC next year, John?

MR. CARMICHAEL: Yes, so Table 1 on Page 6 of your overview will show you a little different how we treated this in the past, and it will show you the assessment complete date so you can think to your next SSC meeting after that; so gag, April 15, 2014. We expect to have that – hopefully we're going to hold a meeting like the very last week of April. Our desire is to have it for you for the April 2014 meeting.

DR. BARBIERI: By the way, folks, I need to interrupt for a second. John, I just looked at my e-mail and my oversight; I forgot that Jim Berkson is actually joining us by webinar. He had some travel complications at the last minute, and he wasn't able to complete his travel arrangements to make it here in person. Jim, I'm sorry that I forgot to ask you to voice your participation. It is one of those things, out of sight out of mind.

MR. CARMICHAEL: Jim, you're muted here. I am going to un-mute you, so be prepared to mute yourself on your end if it should be loud where you are. Jim, can you hear us? Hopefully, he'll speak and we'll hear him.

DR. BERKSON: I can hear you. Good morning, everyone.

MR. CARMICHAEL: Okay, Jim, you have control of your microphone so you can mute and un-mute yourself. Just raise your hand if you want to make a comment in case we don't notice you. I think that will flash up on my screen.

DR. BERKSON: You got it.

DR. BARBIERI: Okay, John, back to you then.

MR. CARMICHAEL: The next item we're going to have; the Steering Committee met at the first of October. Now this was a little modified meeting. We didn't have our Chair, who is the Science Center Director, and we didn't have the Regional Office representation because of the federal shutdown.

But as you can see from the report, the committee had a lot of discussion on SEDAR procedures and methods and good discussion on the schedule. It was a really good opportunity. We have a lot of new people on that committee now due to a staff turnover of the various cooperators. It was good to let everybody get together and have some discussion about SEDAR and really get a good briefing on how this complicated SEDAR scheduling process operates, of which you guys are sort of one of the first steps in this thing that stretches out over a number of years.

We were able to have a pretty successful meeting and you've got the report there. If there were any questions, I would be glad to take them, but things were fairly straightforward with what was accomplished there. We're looking at some changes in the process, which I probably should highlight one.

It was discussed at the council meeting. It really has to do with how we manage the assessment workshop, which is now that series of webinars. Due to the management of this process through the councils and everything that we do being considered advisory panel type meetings, the requirements for all of that are specified in the Magnuson Act, one of the big things is Federal Register Notices of the meetings and having open and public meetings.

That means that we don't have the flexibility to schedule a meeting tomorrow if the analysts come across an issue where they like feedback from that group of people who form the assessment panel. You guys have been involved. You all know how problematic that is. We schedule these things with a series of webinars in hopes that one falls at a good time when people need to make a decision.

Realistically, it has become a big turnoff to the fishermen because it is very intimidating to commit to the process and participate that much. Some of those webinars can be very brief, some can be long and drawn out. You never really know until it gets here, and that is kind of troublesome for fishermen who have to decide to come in and do this or to go out and make a living.

If it is one or two, they could probably make a point; otherwise, it is like they are not going to plan for all of them, because they have to go out and make a living. Then they don't know which ones are really the critical ones. If I get a question from fishermen about it, that is usually first and foremost, which of those webinars do I really need to be at?

I think what we're realizing – and we had this discussion at the council meeting – is that this is really cumbersome and intimidating. It is really not achieving what we wanted I think in terms of participation and transparency just because it is so logistically challenging. What we'd like to do – and the council supports this and the Steering Committee supported this – was to get to some process where the analytical team and the appointed participants, the observers on behalf of the advisory panels and constituency and you guys, the SSC members who form the technical advisory group, can actually interact informally.

The fishermen have really said they would love an opportunity where they could just reply over an e-mail or something when they got in that evening, if you had a question about a particular data point or how the fishery operates in some way during the assessment. I know that the SSC folks would definitely appreciate something like that.

Everyone supports getting to some more informal type of interaction where these people go and they do this assessment and then there are points along the way where we view it in the public meeting and set that up maybe early in the assessment process when you have the continuity run going and you have an idea what you're going to do for modeling; and then late, when you've got a functioning base run and maybe a couple alternatives to consider, and you say which one you think is most appropriate to go to the Review Panel and what sensitivities and such you send to the Review Panel.

The challenge is that being a council process, SEDAR falls under the Advisory Committee Act, and there is no clear legal way right now with how everything is managed to allow these groups of people to just get together and have a conversation on the telephone without putting it on the Federal Register; or to allow them to have this interaction over e-mail and not have it part of a public discussion.

The lawyers are looking into it. Now that folks are back at work, maybe we'll get a little more progress; but other groups and assessments operate this way. The northeast I think operates a little more like this way, but SARC falls under the Science Center and not under the councils, and that is a huge difference in terms of the legal things that you fall under and administration of

the program. I just want to let you guys know that there is support all around for this. We just need to try to find a way to make it happen.

DR. BARBIERI: It sounds good. Reviewing that whole set of proposed changes, I thought that most of them sounded really positive and a step in the right direction to improve our regional assessment process.

MR. CARMICHAEL: The next item that comes up on the list is discussion of SEDAR stock assessment productivity and how the South Atlantic Council views that for long-term planning purposes. I've put together this document and we discussed it at the council at the last meeting and really just looked at how many assessments have been done through SEDAR.

We looked at them by benchmark standards and updates over time. As you can see, we started out pretty low with red porgy back in 2002 and then ramped up to where we're on the order of overall about 12 assessments a year being done through SEDAR. Remember, that is spread out amongst three councils, two commissions and HMS.

It also includes the assessments that are done on behalf of Florida Fish and Wildlife Commission, which adds about one a year to our schedule. Twelve sounds pretty good if we were one Science Center and one council. When you split that pie four or five ways, it suddenly starts not to go so far. The reality is the South Atlantic is getting about five assessments a year, and really we probably need ten to keep up with things, especially under ACLs and such that we're dealing with. We have some assessments that are getting six, seven, eight, ten years old.

Really, what I wanted to try to do is push the council in some direction of coming up with a more sort of broad look at how we do the planning, a long-term schedule that is not as responsive to just knee-jerk things or whatever is most important. We work out a number of years in doing the planning; and if someone is going to say do research to help an assessment, they kind of need to know when you are going to do that assessment.

That was one of the long-term goals of SEDAR. It has been hard to get there, because squeaky wheels get the oil and changes in the Magnuson Act really put a big monkey wrench on our efforts a number of years ago. We tried to renew this a little bit and presented this to the council. There was really a lot of support for coming up with a predetermined schedule, identifying a group of stocks that will be assessed on a regular basis.

That is where we proposed a list of stocks to call them, for lack of a better word, just a core species based really on what has been assessed by the council in the past and what has been identified as something to be assessed, and then the priority stocks that we have in our annual research plan; and it came up with some 20 some stocks.

We'd like some feedback from you guys on this list of core stocks, whether or not you think this is really an appropriate list, if there are other species we should be including in this, as well as then the other big question is how frequent do we do assessments? I gave the council two alternatives; one looking at four years between assessments and the other looking at five years between assessments.

The tradeoff, obviously, with the same amount of resources to do assessments; if you extend it to five years, you get a little extra spot every once in a while where maybe you can do something you hadn't planned on or you can respond to some unexpected circumstance like evidence of a good year class maybe.

The council supported the core stocks and they supported the five-year scheduling. The next step then is to get feedback from you guys on those two issues. Then I will go and prepare kind of a long-term outlook with specific times when we want to do each species, and the council is going to discuss that in December.

Hopefully, after that point, we'll have a handle looking out five, ten longer when we're going to do each species, which should really help research. It will certainly help the scheduling process. It will really show us that if we can keep up with these with the resources, if something else rises to the top in two years, three years from now that is a top priority, we know that we're going to need to find different resources to deal with that.

DR. BARBIERI: Excellent overview, John. Any comments or suggestions?

DR. CROSSON: John, I really commend – was it the SEDAR Steering Committee that put together this document or yourself?

MR. CARMICHAEL: It was just me; I'm responsible.

DR. CROSSON: This is really good. I really like this approach of trying to break it down into what are the highest priorities and thinking long term because it really is useful. I really liked looking over this. The first question that I have I guess is about Table 2.

Goliath grouper, I remember at a meeting a few years ago there was a discussion that Florida and the two councils and maybe the commissions were going to get together and talk about the long-term management prospects for Goliath grouper. I am wondering what came out of that and why is Goliath in here, considering it has been part of a moratorium for I guess a couple decades.

MR. CARMICHAEL: Well, Luiz might know something about that group. I know there is a joint council group and Florida Fish and Wildlife. They have a committee that has looked at Goliath and trying to figure out how to move ahead on that. There are some areas that would like to see that opened back up, and some people think the stock can handle it and others are less in agreement. It is mainly in here, because it has been identified as a priority for consideration and assessments have been attempted.

DR. BARBIERI: I don't know if this is the right time to then go in more detail about Goliath. Well, the councils actually put together what they called the Joint Committee. We have representation from both the South Atlantic and the Gulf Council. We have some Science Center, Regional Office participation, and FWC has been participating actively as well since a lot of the more recent distributional range of Goliath grouper has been concentrated in Florida.

This is the species that we've been paying attention to lately. That committee has decided to come together and propose two processes to be developed. One was kind of like an overview

science workshop that would review all the potential inputs to assessments and then decide, okay, do we have what we need to move forward and assess?

If not, what will be the gaps that need to be filled? This is one thing, and that took place last year sometime, early last year. A report has been prepared. The other part, perhaps in my view the more important part, is we decided to also do a stakeholder engagement process that would actually involve more of the social science group and assess what are the actual perceptions from kind of social sciences, more scientifically structured perspective.

What are the perceptions that we get from different user groups, different stakeholders, and how do they want to move forward; what do they want to see? This process we conducted has just been completed a few months back. We contracted with Kai Lorenzen of the University of Florida and he has been working with some of the folks there.

He put together a report that is actually available for distribution that summarizes what came out of that stakeholder engagement exercise. I have been talking to Kai about potentially coming here and giving us a presentation on what he was able to achieve there; the idea being that our regular public input process may not be truly representative as a scientific sample of the different stakeholder groups.

The people who come to provide public input are usually the same people that have the same kinds of opinions. They just keep telling us the same thing over and over again basically from polar opposite ends of the spectrum. This exercise did more like a random sampling, so to speak, and organized workshops in a way that would have more of what can be considered a scientific survey of public opinion or stakeholder attitudes towards Goliath. That is where we are.

I am discussing with Kai the possibility of him coming here in April to give us a presentation. I would like to hear from you what your perspectives are on this. I thought that the work and the report were very, very informative. Now we are getting ready to proceed to the final stage where we kind of try to develop a menu of potential options that were based on the results of this stakeholder engagement.

Given that we have this kind of profile that came out of the stakeholder engagement, what kinds of options could it put forward to better guide the council in making these choices? If everybody is in agreement, perhaps we can come in April and Kai will give a presentation and we would have a more detailed discussion.

DR. REICHERT: I think that is an excellent idea. I think it may serve as a model for some other similar species. I support that idea.

DR. CADRIN: Just general thoughts; I'll repeat Scott's compliments on the report, because I think this is a strategic analysis that we really need to confront because we're bumping up to it all the time. As far as the alternatives that are proposed, it seems like with the resource limitation we have, we really need to look for alternatives.

I support if king mackerel can be assessed by Florida and there are the resources there, then we should take advantage of that. One, I'm not so crazy about extending the frequency of the core

assessments every five years. We're starting to get into medium-term projections then. That is the biggest weakness of age-based stock assessments is medium-term projections.

If we could find other alternatives, that to me is the weakest one. I really like the idea of combining similar stocks, similar life histories, similar fisheries that have the same data streams, perhaps same method I think would be a great efficiency. Then I wonder if there are others. It came up in a talk about wreckfish where the Center did not have the capacity to do the assessment; it was done by the Regional Office, and then done by an industry-funded consultant.

We're considering an SSC review of that. Our third party assessments with SSC review, perhaps of non-core stocks; I think that would fit in well with John's document; that those would be limited to non-core stocks. I think there could be a place for that. My opinion is that can be done usefully. It can be done wrong.

There are some pitfalls to that, but I think with a tight process which we're developing, there is room for that. Just coming back to SEDAR 32, there was discussion – and Church and others can talk about this – about things like blueline tilefish. There were some of the independent reviewers who questioned whether blueline tilefish was worth that much investment; if there could be some kind of SEDAR-like process where we don't have such a full investment for some of our non-core stocks. Those are just my initial impressions of that.

DR. GRIMES: I will comment on the idea of a fixed time interval, and sort of in keeping with your comments about alternatives, a fixed time interval between assessments; it seems like you might want to consider having a longer time interval for the longer-lived species where stock dynamics and biomass are really not so driven by recruitment as they are in some of the short - lived things like Scomberomorus, Spanish mackerel, dolphin and things of that nature.

DR. BARBIERI: Yes, Church, that is an excellent point because generation time and life spans would really weigh into this.

DR. VAUGHAN: Yes, the question is in that timeframe were we talking about benchmarks every four or five years or we're interspersing them with standard and/or updates? I think to address Steve's problem there with the five years is that if you have an update in between, then you may address some of those projection problems.

MR. CARMICHAEL: This is set up and it treats in terms of the long-term planning; standards, updates and benchmarks are all the same. They occupy a slot of the resources that we have. When we set up – and this is something we discussed at the Steering Committee – when we set up this three-tiered process, one of the selling points on that was that a particular slot, which more or less equates to a person, an analytical resource over a year, that slot could be used for two updates because they are less rigorous than a benchmark.

That was what the council was told. What has happened is in the planning process that occurs we're not given that opportunity. A slot is a slot. If a group did four updates with four people, they do four updates for the year with the four slots. You look at the table we have in the overview, it pretty well illustrates that.

If you look at this analysis, which looks at the last four years that we've had these three schedules, you can see that is clear. We're not getting an extra assessment for virtue of doing an update. We're not taking five slots and getting three updates and three benchmarks or three benchmarks and four updates with the others.

I think we believed that this process would allow us to do much as you say, to maybe in some year do five or six updates, seven or eight updates to keep the benchmarks on like every five, six years and updates every couple of years. But that hasn't happened; and until that happened, I think we would continue to treat each one as one unit.

DR. REICHERT: Just a minor point. Refresh my memory; I think white grunt was bumped because that required two slots because of the two stocks. That is one example where we may have to add a stock and there may be other species that we may find out that are similar.

MR. CARMICHAEL: Yes, there are species that are so complicated, or like you mentioned white grunt where there are two units, it goes from being one species to it is now occupying two slots. That is the case with red snapper. Red snapper is now allocated two of our five analytical slots.

I will also mention that one of the issues the South Atlantic faces is that the same group that does the South Atlantic assessments does menhaden; so if there is a menhaden assessment, the South Atlantic uses a slot. The only reason the South Atlantic has been able to maintain five per year is because Florida has been doing one per year for the last several years. If not for that, we'd be getting only like four assessments a year out of the resources that are allocated to work on South Atlantic species.

DR. REICHERT: The other thing with the coming online of the video index; we may need to be a little conservative; because if that video index is going to be entering the stock assessment process, I think at minimum we would need to do a standard rather than an update for the stocks that we have already assessed.

DR. BARBIERI: Yan, did you have a comment or question?

DR. JIAO: I actually have a question that I'm not that sure is appropriate. It is about SEDAR terms of reference. But to my point, based on those stock assessments that are within the SSC experience, I feel like a recommendation from the Assessment Team and also the Review Team as to whether the next assessment should be an update assessment or benchmark assessment makes a lot of sense. But then the workload as to whether it should be for update and a benchmark can be largely different though. I think this may need to be considered when we design those SEDAR timelines.

DR. BARBIERI: Right; and I think that is an excellent point is what the recommendations are coming out of the review workshop. As the SSC sees that assessment, whatever assessment it is, whatever type of assessment it is, we either endorse that recommendation from the Review Panel or we modify it for the next type of assessment. I think that is a good suggestion.

DR. GRIMES: This is more just a question. How does the productivity for SEDAR compare to some of the other regions? What is the limiting factor here? Is it mostly the ability to do the

analytical work on the part of the Center or is it that the process is long and drawn out and the time it takes just to get through all of the steps in the process? What do you think is driving the productivity?

DR. CADRIN: I can speak for the northeast. We have exactly the same problem of capacity. There is a bottleneck in getting the assessments done. It is probably in the stock assessment group. We have two councils that rely on the northeast, and we went through a strategic planning with a lot of us similar to what John has taken on by himself.

We identified the same problem and tried to come up with solutions of research track and more operational update processes that are less time consuming; but it is the number of stock assessment scientists that are the limitation there. As I see it, it is the same thing here.

MR. CARMICHAEL: Yes, I think when we've looked holistically across science centers and looked at the total assessment burden, the southeast fairs fairly well. But the reality is, as I mentioned, we're spread across all of these councils within the things that are done by SEDAR and then there are also the assessments that they do for ICCAT.

When you take the overall load of assessments that the Southeast Center does and you compare it with other regions like the northeast, it comes up fairly similar in terms of the amount of assessment per person that gets cranked through. Some areas seem to maybe do a little more. If you look out to the Pacific Northwest; they're doing a lot of things on an annual basis with a large number of stocks.

I think maybe the northeast, as they go to these operational assessments, might start to outpace us quite a bit. Another limitation we do have in SEDAR is within data. I don't know if other regions share that as much. But one of the balancing things we do with the scheduling is to maintain an interval between each data delivery deadline.

Whether it is an update or standard or benchmark, it all is data delivery. That balances that for the data group, because that is a very limited of people. The same folks come and deal with the logbook data, whether it is the South Atlantic, Caribbean, Gulf, even in some cases shark SEDAR, so we have an added limitation of data issues in this region.

DR. CADRIN: As the people in Woods Hole remind me all the time, we are part of the problem. The SSCs are part of the problem is that we are layering more and more requirements onto assessments. It is really the requirement for annual catch limits for all stocks; and then being probability based, we're asking more and more of these assessments as well.

DR. BARBIERI: Yes, no doubt, the burden has increased substantially over the last several years.

MR. COLLIER: In the core list of species, I think there should be a consideration for choke species like potential species that are closing down areas or they continually come up for management options to potentially close areas or close seasons or however they are going to affect a fishery.

Speckled hind and Warsaw should be considered. They have been zero harvest for a long time now and we still haven't had an assessment. We lack data; but if we take them off the assessment list, then it is going to be a lower priority for research, and then it is going to be a downward spiral.

DR. BARBIERI: Chip, I agree; however, I think that at some point we may want to consider as an SSC developing a set of recommendations for the SEDAR Steering Committee and discussing with staff the issue of some of the species that are data poor and how we're going to handle them.

It is a phenomenal amount of resources that go into the typical SEDAR assessment. In Florida we have organized our assessment schedules into tiers. Depending on the tier that you fall in, you are going to have more or less dedicated staff and more or less time invested, because sometimes you can provide a recommendation based on something that is not as complex as a full-blown assessment, especially considering the resource limitation that we have in our Science Center.

I think this is something that would be helpful. Steve made the comment earlier that came up about the blueline tilefish. I've seen on the Gulf side several assessments that were conducted in a lot of detail and used highly complex assessment models. Really, at the end, the level of uncertainty that came out of those assessments were so large that they are not really much better than us doing something other to provide management guidance and not tie up so much of the Center with those stocks.

It is something for us to think for the future, because it might warrant for us a one-day workshop, a dedicated day that we as an SSC can come in and perhaps we can even involve members of the council that would be willing to participate and our advisory panels like we did for the ORCS, but discuss structuring something in a way that would facilitate that.

DR. REICHERT: I agree with that approach. Although I do agree with Chip, no matter how you look at that, whether it is the assessment team or these people who are going to provide us with the information to base our decision on, that requires time. I think somehow we should allow a slot, no matter how you define that for those particular species, because it does require effort.

DR. BARBIERI: Right; my point is that slot would not be on the same tier. We actually would come up with a plan, which already evaluates the amount of effort that we want and how much we want to use in terms of Science Center resources, and so you start your trip and already know where you are going to go and what you are going to get when you get there.

Another issue to me that matters in this case is regulations that are coming online. For us, we do not assess – we try not to assess anything that has regulations that just happened less than three years ago; because there is so much of the confounding factor or changes in selectivity to real changes in stock status and year class strength that becomes very difficult for the assessment to really tease that apart well. Depending on the lifespan of the species, as Church suggested, you come up with a schedule of how many years between stocks. Then depending on the number of regulations, you adjust that schedule accordingly.

MR. CARMICHAEL: I think this has been some great feedback. I got a sense of four years is probably the comfort zone due to the projections and whatnot and the uncertainty as you look ahead, obviously. Especially consider the terminal bias that you have in the data lags anyway, you are looking at a long time between these assessments really when you do that.

We have a number that are longer than that, seven, eight years in the case of greater amberjack. I think there is some stuff we can do there and maybe some bundling as we get into the specific scheduling, which will increase efficiency, and maybe consider if there are some stocks on this list that may be sort of stripped over to more of a special category where speckled hind and Warsaw grouper are now. I wonder if maybe Goliath and dolphin should belong there.

Dolphin is a very important stock, but yet we know the challenges of accessing that thing. A couple of attempts have been made. Maybe that becomes more of a special topics and not a regularly assessed species. That would drop us down to like 21. That almost gets us where we need to be.

If we get five and occasional year we can actually get six with Florida's participation, then I think we can achieve the four years out of the schedule. Maybe some tweaks on this – obviously, the life history, but another thing that comes to mind to me is management and stocks that are under rebuilding probably need to go a little more frequently. We certainly want to schedule an assessment when a stock gets to its rebuilding time, so we can check that box and the council can move to MSY management. It seems like I had one more thought but I guess it just slipped away from me.

MR. HARTIG: Yes, I'm heartened by the discussions and the thought process going forward about how we deal with these in the future. To me we really need to get down to the nitty-gritty on some of these species like Spanish mackerel, which I believe is on auto pilot. The gear changes in that fishery over time; year class strength varies year to year; the stock has never been overfished.

You may look at that species and you go maybe we don't do age-based assessments on that and maybe we go to a simpler method of assessing that group. The way that was done before, when we had the stock assessment panel that looked at that stock on a yearly basis, I don't think we had age-based assessments back then. We had a lot of length-based stuff.

Maybe we don't need to invest the resources in every one of these species that we are, and maybe we can get some bang for our buck by looking at it species by species and making some decisions at the scientific level. You guys can point us forward to get a better handle on saving some time on some species and moving that into others that need it more.

DR. BARBIERI: Exactly; that is I think the type of stuff, Ben, I think we should discuss in that workshop. We need to set some set of explicit guidelines I think to help the analytical teams and to help the assessment panels make some of those decisions. Based on my own experience in Florida, the analysts want to do the best job possible. They have a tendency to gravitate towards the age-structured models that are as complex as possible, because they take pride in what they do. They want to come up with a result that they feel has a high degree of confidence.

It has been difficult for us to convince some of them to basically say if we have a stock that is at this really high level of abundance and with fisheries that have basically been discontinued, so to speak, and became fairly small scale, we don't need to assess them as often, and we can actually afford to have a higher degree of uncertainty in that case. The degree of confidence on the actual status of the stock because we know it is most likely way above what the benchmarks recommend; so again I think that if we have that discussion, that is spot on.

DR. DUVAL: I was just going to speak in support of what you had suggested in terms of a workshop similar to Ben; whereby you could provide the council with a more refined recommendation for this initial analysis that John has undertaken that takes into account the different tiers of stuff that you mentioned, the information that is available for those different stocks, incorporate some life history characteristics.

I think when we reviewed this at the council meeting in September and put our support behind the five-year approach of assessments, we were looking at, well, how can we get more stocks assessed and fill in some of those gaps in stocks that have been unassessed and not necessarily considering some of these other equally important but more detailed and lengthy kinds of discussions. I think it is definitely a step in the right direction.

MR. HARTIG: Just one more point about the length-based approach; there are a number of people in industry that are willing to do lengths. We can pop lengths out. I'm sitting there waiting two hours to unload; I could do the lengths of all the fish that I've caught in a particular trip. I have the board, I punch the board and I'm done. That goes back to the TIP samplers and you have that kind of information. There are those of us who are willing to provide information at no cost, additional information, if we can get down to some of these species that we can change that dynamic.

DR. REICHERT: To your and Ben's point; maybe we should consider in more specific language in the terms of reference of the reviewed – a discussion or a suggestion of alternative models based on available data. I think it is in there a little bit, but I think it is buried. I think it would help for future assessments if we can get some recommendations in terms of, well, maybe you will get as good a product using a length-based model; or, as you said, it may increase your uncertainty a little bit, but not sufficiently in terms of a tradeoff for getting assessments done.

MR. HARTIG: The other thing is on these data-poor stocks, we could start out now getting lengths from the commercial fishery right now. We could swamp you with a number of lengths for a number of these species that have relatively high landings, like species in the jack complex, for instance. We can give you the lengths on those now. That is a basic start.

Maybe down the road sometime we have some more resources to do ages. Maybe you hit it hard one year and you do ages one year and you get the cohorts lined up and you get a snapshot of what it looks like for that particular year to balance your lengths. I think there are ways to do this to move forward. I think this workshop is a good way to get at that.

DR. VAUGHAN: I was listening to Ben; and I know from past experience that there is very little information in lengths, surprisingly little compared to what you get from ages. But your last comment stirred a thought that maybe there is some way that you can balance, not aging

every year, but maybe every other year or every third year as well as getting the lengths. I know lengths are easy to get, but they don't have a lot of information in them either.

DR. BARBIERI: Okay thank you, everybody, for the comments. I think they have been instructive.

MR. CARMICHAEL: To rehash a little bit or to at least clarify, do we want to request we do a workshop and dig into these issues a little bit more and maybe look at some interim things that you might do between assessments to deal with the projection issues, discuss some of these kinds of special needs stocks that we have.

Maybe we have a slot that becomes available, what would we do; what would the priorities be? Are there some more efficient assessment methods? I think that fits in well with the discussion we'll get later this meeting from Caruthers. Maybe a good followup between that and this discussion will be a workshop like that. We'll put things in motion to try and set something up.

DR. BARBIERI: Just to add to that; it would be great to have as large participation as we can afford from the Science Center. I think having the core analytical team help us with that discussion, I think would be important.

DR. REICHERT: Perhaps add to that list, look at species groupings in terms of what data is available, life history, et cetera, or something that we discussed earlier and Michelle mentioned and you actually mentioned, also.

MR. COLLIER: Also consider what to do with species that are getting close to the rebuilding target, because that is going to have a lot of pressure on it.

DR. BARBIERI: As an action item that we step out of here with, I'm going to sit down with Marcel and John and discuss setting up a set of suggestions for how to structure the workshop and perhaps draft a set of terms of reference and objectives to kind of put all of this before the committee, so the council can see all of this hopefully by December. Before we move on to the next topic, Jim Berkson, do you have any comments?

DR. BERKSON: Not at this time.

DR. BARBIERI: John, we have perhaps one more action item in discussion of this topic. I think before that, we could go for a little break.

(Whereupon, a recess was taken.)

DR. BARBIERI: Restarting after the break, we were having some discussions about some of the stock assessment presentations with Steve Cadrin and others, so that kind of pushed the break schedule a little further. Now we're going to go back to John Carmichael and address I think the last action item for the committee to consider.

MR. CARMICHAEL: There are a couple more things to wrap up the SEDAR business. If you recall back I think when we discussed the Spanish assessment and we talked about shrimp data, we had a presentation on the shrimp assessment methods that have been used in the Gulf. There

was discussion of trying to have a shrimp data workshop to look at what is available in the South Atlantic for shrimp data, both for estimating bycatch of finfish species, for things like Spanish mackerel assessments, as well as what maybe is available for doing an assessment of the shrimp stocks. The Steering Committee has supported that.

We would like to do something some time in 2014. The first step there is then to get an idea of when we would do this, what we should get out of this workshop, who might need to participate, what are the terms of reference. I don't know how much people are prepared to discuss here. Maybe we can get just sort of a steering committee convened at this meeting. The steering committee can work on this stuff and have a plan that gets approved in April.

I certainly think the shrimp data is so much involved with the states that it would be nice to have a representative from each state who is very familiar with the shrimp data collection programs that could come and at least be workshop participants and at least have a couple of them that are familiar with our shrimp team that we have. If we have an overlap with a shrimp team member and this committee; that would probably be a good voice on the steering committee.

DR. BARBIERI: Following up on these suggestions and recommendations from John; can we have some volunteers to participate in this steering committee that would help us – Carolyn Belcher – sort of with structuring this. Going a little further with the discussion, I do think that perhaps given the document that John prepared about SEDAR productivity, I think it would be really important for us to discuss where to go with shrimp.

I think that shrimp might be one of those stocks that we discuss in more detail at our upcoming workshop. I wonder about, for example, terms of reference. Are they really susceptible to or are the standard MSY-based terms of reference really applicable to shrimp? What are the alternatives that could be considered; perhaps an index-based reference point.

We discussed this in the past, and it depends on the availability of data to develop an index-based reference points, but something that we can look at these terms of reference for this assessment and identify what is the goal; what are we trying to achieve with this assessment and not to try to put a square peg into a round hole.

If the objective is to explore some of the stochasticity and environmental variables and the fluctuations in abundance over time or if the objective is really to determine stock status; and I can tell you from the assessments that the Center presented for the Gulf, we had a lot of difficulty with the reference points and coming to a final result of where we were and how much we had accomplished. Just something that I think should be discussed in more detail. Are there any additional comments or questions, volunteers?

MR. CARMICHAEL: Chip just volunteered.

MR. COLLIER: Whoa, whoa, no. You had mentioned bycatch and trying to estimate that; I know North Carolina is going through a lot of hardship with their fishery management plan for shrimp right now and dealing with issues associated with bycatch in the shrimp trawl fishery. Basically, the research isn't real good out there on trying to use proportions of what was landed, compared to what is observed in the catch and different things like that. I guess somebody from

North Carolina should be on it, because they are familiar with it, but I don't know if it should be me.

MR. CARMICHAEL: We're looking for the steering committee; just folks who will help identify people that should participate and draft up terms of reference to review here. I think SSC members being on the steering committee would be very good, especially those who have an idea of who should also come to the workshop.

DR. BARBIERI: Right, not necessarily workshop participants. That would be for you as representatives of the different states and other organizations to be discussing internally as you do with your agency, but, basically help us lead this issue forward and get the TORs and the objectives and all that.

DR. BELCHER: Would it be worth it to poll the group that is involved with the shrimp? Is it an ad hoc committee, John, I don't remember. I know Pat Geer is on it and there are folks representative from North Carolina and South Carolina as well. Larry DeLancey is on it. It is basically the folks, as we were hitting those triggers for the index base for pink shrimp; the ones who were giving the input as to the fact that they don't think it is necessarily stock driven, it is more environmentally driven. I think those folks probably would be good to have on that as well. I think there are five people or something.

MR. CARMICHAEL: For workshop participants?

DR. BELCHER: Yes.

MR. CARMICHAEL: Yes, definitely. You seem to have some good ideas and Chip, so maybe you and Chip can be part of the steering committee.

DR. BELCHER: I just assumed it was a de facto volunteer thing from Luiz, anyway.

MR. CARMICHAEL: Maybe Luiz.

DR. BARBIERI: Thank you so much, Carolyn. I appreciate your stepping up and I will participate, yes.

MR. CARMICHAEL: There is no travel funding for this group, so I'm afraid we'll just have to meet over a conference call or what have you.

DR. BARBIERI: Yes, which is quite appropriate.

MR. COLLIER: Don't forget about the South Carolina rep. I think he should be on it, too.

DR. REICHERT: Okay.

DR. BARBIERI: Vice-Chairman Reichert.

DR. REICHERT: Sure.

MR. CARMICHAEL: One other thing; now that you guys have had a little warm up and you've had time to think, we didn't make the call for participants for SEDAR 41; red snapper, gray triggerfish. We need SSC participants. The council will consider participation in December. This isn't starting with the data workshop until August.

We expect to have some more participants named again in March, but you don't meet again until April. If we can get names here this week, that would be very helpful. If anyone wants to jump up and volunteer right now, we will be glad to write your name down. Just for a refresher, the schedule that you accepted has a data workshop the week of August 4, 2014; an assessment workshop the end of January 2015, and there were webinars scheduled through May. Then the review workshop is June 23-26, 2015.

We would be looking for a couple SSC participants for the data and assessment workshop and then a Chair and a couple of policy reviewers being separate from those at the data and assessment workshop to participate in the review workshop. Just a reminder, there is a physical assessment workshop for this project.

DR. BARBIERI: I will step up and volunteer to participate in the assessment workshop and to Chair the review.

DR. BERKSON: Luiz, I would be interested in volunteering for the review workshop.

DR. BARBIERI: Excellent, thank you, Jim. Doug.

DR. VAUGHAN: Assessment workshop.

DR. REICHERT: Data workshop.

MR. COLLIER: I guess I'll be doing discard mortality.

MR. CARMICHAEL: You seem to have a niche for yourself.

DR. BARBIERI: Chip, your dedication is phenomenal, really. We don't need to close this right here. If you guys feel later this evening a little more inclined to volunteer, we can just have it back first thing tomorrow morning, just to make sure that folks had some time to check their schedules and their availability and all.

MR. CARMICHAEL: All right; so the next topic is dealing with stock assessment recommendations. This was brought up from your previous meeting. When we reviewed a couple of assessments, we have the base run deterministic results and there are also the various probabilistic results.

We didn't really have a process formalized and a method for dealing with that and dealing with that in regards to stock status and the various recommendations that you make, so you asked for some time on this agenda to have a general discussion of how you might better incorporate those probabilistic results into your fishing level recommendations and stock status determinations. Mike Errigo prepared a document that looked at some of the alternatives, discusses how these values are determined and gives some examples for how this approach could work and what it

would mean for the fishing level recommendations you give. I think with that we'll get Mike to go through his presentation. This is Attachment 8 from the briefing materials.

DR. ERRIGO: I am just going to walk through the actual attachment. All the figures and everything are there. This is basically just a strawman of ideas that I put together of how one might go about using the probabilistic MCB runs instead of the base run to look at the stock status determination and things of that nature.

There are two components that you need. One is you need something to describe the central tendency of the MCB runs since they're given as a distribution. Then step two, which is here – step one here – the three options that I laid out was the mean, the median and the mode. Those are the three big guns. I'll just go over those real quick.

I am pretty sure we all know what they are. The mode is just the highest point. That one is the most sensitive to skewed distributions. On the left here, Fmsy from the black sea bass update is heavily skewed, so the mode would miss all that information in the tail. The median is the least susceptible to outliers and skewed data. The mean is kind of somewhere in the middle.

The biggest plus to the mean is simply computationally it is a lot easier to compute. It takes a lot less time to compute. However, we do know that the Science Center can give us medians; that is what they give us right now. In fact, all of the most recent assessments and updates have all of the MCB medians in them. We know that they can calculate them and give those to us.

Those are the three options that I came up with for describing the central tendency of the MCB distributions. If there are any others, of course, I wasn't sure what other ones might be of interest. Those are the ones that I came up with for that and these are just the examples. There is the Fmsy distribution here on the left and the spawning stock biomass distribution on the right.

These are fairly typical of what you might expect to see in our assessments here in the South Atlantic. Fmsy tends to be heavily skewed to the right because it cuts of at zero. It has a large right tail for those outlier high F values. Then SSBmsy tends to be a little more normal looking. It doesn't tend to have one tail that is significantly heavier than the other in most cases.

But F does always tend to be skewed for the most part simply because it cuts off at zero. We do have to worry about skewed distributions. Then this here is an example of distribution of status. This is F over Fmsy, and it is kind of bimodal. It is really wide. The mode would really miss the central tendency of this distribution here.

This is from SEDAR 28, Spanish mackerel. These are all actual distributions. None of these are made up; like I just came up with to show it might not work in this case. These are all actual probability densities. For all of them, the median does a pretty good job of looking at the central tendency. The mean does all right.

It is these distributions like F with heavy tails that the mean tends to give a different picture than the median. It might miss the actual central tendency. Mean tends to be not so great for F. Mode tends to miss on these wide distributions like this, which they don't happen all the time but they can. Those are the statistics that I came up with. If there are any others, then you guys can discuss those. I wasn't sure what else would be of interest. The real meat of this discussion I

thought would come in when trying to determine status of how do you use that to say overfishing is occurring or this stock is overfished or this stock is considered rebuilt now?

I came up with three main overarching themes to try and use this information. The first one is pretty simple. You take your median value and the median from the MCB runs and you just look at the stock status based on just the median. I'll use a median for my examples since the Science Center has been reporting medians to us. I'll just use the median as the example.

For this situation here, this is F over Fmsy. The bar is not the median. That is the base run, but for argument sake if that was the median, you would say, okay, the median is there, it is less than one, overfishing is not occurring, the end. It is a pretty simple way of doing it. You are not taking into consideration any kind of uncertainty in the MCB runs or anything like that.

You are just taking the median value and comparing it directly and coming up with your stock status. Basically, it just says here if the distribution of F over MSY, if the median is greater than one, then overfishing is occurring. In the distribution of SSB over MSST, if the median is less than one, you are overfished.

You are considered rebuilt if the median value of SSB over SSBmsy is greater than one, pretty simple. The next one tries to incorporate – and I have examples later and I'll show the tables and stuff for that – the next one tries to incorporate some of the uncertainty into the decision. If you have a lot of uncertainty in something you want to be a bit more conservative or perhaps you want to be liberal, we're not quite sure so we'll let more fishing occur; or, we're really not sure so we want to let less fishing occur depending on which way you want to go with it.

Number 2 here uses the standard error, which the Science Center calculates for all their MCB runs. Basically what you would do is you would say, okay, for overfishing you have your distribution of F over Fmsy; so if the median value is greater than 1 plus the standard error, then overfishing is occurring. That one is the more liberal of the two.

Okay, we're saying that it is not when F is greater than Fmsy; it is when F is greater than Fmsy plus the standard error. Or, you can say if F is greater than Fmsy minus the standard error, so we want to be more conservative; let's decrease Fmsy by the standard error and make the status determination that way.

I'll go over the plusses and minuses of all these, just go over them quickly and then I'll show you the numbers that will make it easier to understand. This one just uses standard errors. You're using the standard error as a buffer. Either you're making it harder to get an overfishing or overfished determination or easier to get an overfished or overfishing determination based on the magnitude of the standard error and using the standard error as your buffer.

The third possibility that I have listed here uses the P-star analysis instead and uses the percentage of runs in the MCB analysis compared to the P-star value determined by the SSC. Let's say you are looking at overfishing and your P-star value is 40 percent. You have a 0.4 P-star. That was the P-star value that was determined for black sea bass. Overfishing is occurring if at least 40 percent of the MCB runs show F greater than Fmsy, because 40 percent is your cutoff, because that was the P-star value. If you determine your P-star value is 30 percent, then

you would say overfishing is occurring if at least 30 percent of the MCB runs show F greater than Fmsy.

The same is true for the overfished status. If at least 40 percent of the MCB runs come out with SSB lower than MSST, then the stock is considered overfished. You are using your P-star determination to set a buffer based on the level of uncertainty there is in your analysis, using the MCB together with your P-star value to set a buffer for your status determination.

I have some numbers to help make that a little clearer. For this one here, Table 1 just shows for F over Fmsy – this is for black sea bass – you have median values of standard error and the percent of the MCB runs. This is the information I used in the table to do the analysis to say is it overfished; is overfishing occurring? Table 1 is just the numbers that I used to make the status determination in Table 2.

In Table 2, if you just use the median value for F over Fmsy, the median value is 0.66; 0.66 is less than 1; therefore, overfishing is not occurring. For SSB over MSST, the median value is 1.66. It is greater than 1; therefore, the stock is not overfished. Then in the rebuilding plan, since black sea bass was in the rebuilding plan, SSB over SSBmsy; 1.03 is greater than 1, then, yes, the stock is rebuilt and everything is okey-dokey, and black sea bass is happy.

That is how Option 1 works. You just take the median values and go with it. It is the most similar to using the base run. Option 2; you have 2A and 2B. 2A is the more liberal of the two. You take the median value 0.66 and instead of comparing it to 1, you compare it to 1 plus the standard error.

You are saying will allow more fishing to occur than Fmsy would allow, because we're uncertain. We are not really sure. There is a lot of uncertainty around Fmsy, so we'll allow a bit more fishing to occur because we're not sure. We have this much uncertainty. You add your standard error to 1; 0.66 is less than 1.24. Standard error is 0.24 for F over Fmsy, so overfishing is not occurring.

In the overfished status, you are subtracting standard error from 1, because you're saying we'll allow the population to dip lower than MSST, because we have this much uncertainty in what the value of MSST is, so 1.66 is greater than 0.49; the stock is not overfished. Then in the rebuilding plan again you are subtracting the standard error from 1; so 1.03 greater than 0.77; and you are good.

You start to see differences in the next one, where you're being really conservative. In this one you are saying we're not sure what Fmsy is so let's be conservative; let's allow less fishing to happen based on the standard error in our estimates. In the F over Fmsy you are subtracting the standard error from 1.66.

It is not greater than 0.76, so I don't know where I got that. It is not greater than 0.76 so overfishing is not occurring. I don't know how I got that number out of that; I made a mistake – 0.66 is not greater than 0.76. Overfishing is still not occurring. Is the stock overfished, 1.66 is greater than 1.51; no, the stock is not overfished. However, in the rebuilding plan 1.03 is less than 1.23; therefore, the stock is not yet rebuilt. Overfishing is not occurring.

The stock is not overfished; but according to Method 2B, black sea bass in this update would not have been considered rebuilt at this time. Then there is the P-star value, which is a little different, so then it is a percentage of runs. If you look at the Fmsy, 93 percent of the runs came out below Fmsy, which is greater than the 60 percent that you needed; therefore, overfishing is not occurring.

Ninety-eight percent of the runs came out above MSST, which is greater than the 60 percent threshold based on the P-star value. It is not overfished. And 68 percent of the runs came out above SSBmsy, which is greater than the 60 percent threshold set by P-star, so you are rebuilt. Using Method 3, black sea bass would come out as no overfishing, not overfished and rebuilt.

That is how those options work. One of them sets no buffer. Option 1 sets no buffer. Option 2 either sets a conservative buffer or a liberal buffer. It allows more fishing or lower stock based on the standard error in the MCB runs. Option 3 uses the P-star analysis and percentage of the runs in the MCB analysis to determine stock status. That was a very quick run-through. If anyone has questions, I am more than happy to answer them. The rest of the paper is all background and other such stuff, plusses and minuses of each method and whatnot.

MR. COLLIER: Does the P-star already include stock status in it when you are trying to drop down from the 50 percent?

DR. BARBIERI: Yes.

MR. COLLIER: We might want to consider dropping that out if a P-star type approach is used.

DR. ERRIGO: It could be that perhaps you would come up with a different metric besides the P-star value used to set ABC. The idea was to use a metric that incorporated the resiliency in the stock, the uncertainty in the modeling, the model tier and that kind of stuff into the decision-making process. But you're right, one of the P-star criteria is, is the stock overfished and overfishing stock status.

DR. VAUGHAN: I thought I'd make a couple of comments as a statistician or a man of means. In terms of measuring the central tendency, I think the median is the best. The other ones can be biased because of the shape of the distribution. My first comment would be stick with medians, In terms of where you are relative to the benchmark, I think looking at the distribution that is provided from the assessments of the two benchmarks; so that you could use the 50 percentile or you could use the 40th percentile or the 60th percentile, as Mike described, but still base it on a percentile, and that keeps it internally consistent with the model output.

Then beyond that, if you want to build in extra conservativeness or liberalness, that is a decision that we can discuss, but that would still work. The plus or minus the one standard error; the fallacy of that is that you're assuming a symmetrical distribution, which you typically don't have. Since we're provided with the distribution of the benchmark, I would work directly from those and be consistent with the model output.

DR. BARBIERI: My view on this personally is perhaps a little more philosophical in nature. I kind of disagree with the perspective that was presented last time about not mixing the two. I am not uncomfortable personally with the mixed approach at all. One of the reasons being I think

that deterministic – can you put out one of those graphs there for the MCB distribution examples; Figure 1, yes.

Those vertical lines in the middle represent the base run. To me that base run incorporates really the best judgment from the assessment panel and incorporates the estimates that were considered the best to maximize to be the most realistic. In that case they carry more weight. It makes us a little uncomfortable, the fact that it is the deterministic; but to me the MCB is really designed or MCMC or any other is really designed to give us an idea of that uncertainty regarding the assessment parameters.

Depending on how you structure your MCB runs, they may not be as well informed in a way as that base run. It doesn't really incorporate – I mean, in that case you are just pulling out of your total range of data values from the parameter space and the data space; you're pulling out to run those MCBs, and, yes, it gives you all the possible scenarios and a density which you can compare with your base run.

I feel the way that we reported black sea bass, where we presented the council the deterministic answer on the stock status both for biomass and exploitation, then we presented the probabilistic results as a way to give them an idea of the uncertainty around those results. I think in that case they were presented with the best of both worlds.

They had the base run, which to me is the best-informed run in front of them, to give the deterministic result of stock status. Then they were presented a probabilistic as well to give them an idea of the dispersal around those results. I don't see a conflict personally. I feel that there will be situations when stock are fully rebuilt; and when you have those strong year classes coming through, that we get in the situation that we got with black sea bass; that the projected MSY value is higher than the deterministic one, but keep in mind that the deterministic MSY value is mostly retrospective in nature.

It reflects the entire history of the fishery and the cumulative population dynamics of that stock, while the projections going forward actually have a higher degree of uncertainty in them, and unrealized recruitment, for example, that we not for that entire time series know what recruitment will be. To me in those situations like we did with black sea bass, we simply – if we have that discrepancy, we justify, like we justified last time as a special case, but keep using the deterministic base run just for an alternative discussion here for the committee.

DR. CADRIN: I support much of what you said. In fact, I had exactly the same frame of mind is that the base run is the most likely estimate for stock status and that the MCB was intended to capture the uncertainty in that estimate. However, SEDAR 32 reviewers actually had a slightly different perception of those two models.

They viewed MCB as actually an alternative model, because it is a Bayesian approach to things like natural mortality, steepness. It is actually a different estimation procedure than the base model, which is just based on likelihoods; assuming that M and steepness are fixed. You can get in situations where the median MCB is different than your most likely estimates.

They consider them to be different models, and this is where what we had done in SEDAR 32 is identify the model that was the best scientific information available for stock status

determination; in which case we determined it was the base run, and that the MCB was the best scientific information available for a stochastic projection. We explicitly made the distinction that you are right now in SEDAR 32.

But as stock assessment goes more and more Bayesian, I can see where a review panel might view the MCB as the best assessment, but they supported your paradigm of how these are going to be used. It may not always be that way.

DR. BARBIERI: Right; but in a strictly Bayesian sort of scenario; the MCB may not be structured and considered a true Bayesian estimator. To me that is how you configure – it is dependent on how you configure really your MCB structure.

DR. CADRIN: To that point; that is exactly why SEDAR 32 went with the base run for status determination. They felt that the MCB, as it is currently being implemented, may have some infeasible combinations of M and steepness and the likelihood of all the other likelihood components, that it may actually be overestimating the variance in those. That is why they felt it was not the best model because of exactly that.

DR. JIAO: First, I think I support the idea for the report of the best estimate. I actually have a major concern about the MCB approach, because this is not a Bayesian approach. This is called the Monte Carlo Bootstrap. I looked over the slide based on the blueline stock assessment. It is only Monte Carlo Bootstrap Data based on the input data uncertainty and also resembled the length frequency, age frequency based on the sample size and the observed age or length frequency. In this case, the uncertainty from the model itself is ignored.

Eventually you only consider the data uncertainty. For example, if our data is perfect, we don't have an observation uncertainty, you still will get an estimation of uncertainty, because the model is impossible to be perfect to explain what we observed. From that point, I think we need to be careful when we interpret the answer and the estimated from the Monte Carlo Bootstrap.

I think theoretically it needs to be compared with a result such as Bayesian Analysis, which considers both data uncertainty and the model uncertainty at the same time. This is my concern of it. I didn't really get a chance to look over whether there was a peer review about this approach. That is my comment so far.

DR. BARBIERI: Are there any other comments or suggestions or questions?

MR. CARMICHAEL: We stand at mixing the two is not a problem; each has different purposes? It seems like people agree with what Steve described from SEDAR 35 where the base run is best for status in many instances, and then the projections could come using the MCB results. The MCB results; would you continue to want to report them as we did for black sea bass and Spanish about the proportion of runs above and below the different reference points as a way of reflecting the uncertainty in your base run determination?

MR. COLLIER: In the data workshop we are requested for sensitivity analyses. A lot of times we push the range of the data. I think in the data workshops we need to be more explicit in what we mean by a sensitivity analysis and then a potential alternate view of reality. We don't need to go to extreme natural mortality levels if we don't feel that those are warranted.

DR. BARBIERI: I am sure that this discussion will continue as we look into the future, because not everybody – which is perfectly fine – not everybody agrees with that inconsistency in how you report your results. I think there are good points on both ends of that argument, but I don't really see a strong reason for us to depart from what we have been doing. I appreciate you exploring all of this, because now I think we had a much more informed discussion, Mike, and we could see actually working through some of this. To me it was very helpful in thinking about this and guiding the discussion to this point.

DR. ERRIGO: One question I had – I actually had brought it up back when we were looking at black sea bass at the last meeting – was when they do the projections for rebuilding, they give you the rebuilding, the landings and all that. Then they give you the probability that it is rebuilt, the probability that the spawning stock biomass is greater than SSBmsy, your target.

That probability is coming from the MCB runs, so that SSBmsy – the SSB over SSBmsy is from the MCB analysis; it is not from the base run. I don't know if they can do that and I don't know how – that means that you're determining if it is rebuilt based on the MCB analysis and not on the base run determination of SSB and MSST or SSB and SSBmsy.

DR. BARBIERI: Right; and this is something we need to look at. I always find getting those probabilities helpful and the likelihood – the way that they present it to us is like what is the likelihood that we're going to achieve rebuilding within this timeframe given this set of parameters. But, yes, we need to be more careful in how we evaluate those.

Now, if they are coming out of a projection – you know, to me, I'm not saying let's not use the values that come out of stochastic type with sampling MCB, MCMC, I think, or any of those others. But I'm saying stock status to me reflects a base run and reflects the retrospective history of the fishery and how the dynamics of the stock has responded over time. That is different than how the projection looks forward. In that case, I think the more probabilistic approach is appropriate.

MR. CARMICHAEL: I guess what Mike said is the status, when they report SSB over SSBmsy, it is a little of the probabilistic in there.

DR. ERRIGO: Well, I see what Luiz is saying. In the assessment in that year, you would get your status from the base run; SSB over SSBmsy is blah. When they do the projections and you are saying, well, when will we rebuild or when they do the projection and they say F rebuild, when do we hit the 50 percent mark so that F rebuild – we're rebuilt by the end of the time period; that estimate is coming from the MCB runs.

They are not using SSBmsy from the base runs. But like Luiz said, that is a likelihood; it is a probability and you need to take into consideration the uncertainty in your estimates when you are projecting forward, so I suppose it makes sense. I don't know if it would be appropriate to just insert SSBmsy and then calculate forward; because as you're resampling your MCBs, you are going to get SSBs that don't match the SSBmsy and that is not really appropriate.

DR. BARBIERI: I know and that makes a very interesting discussion, because you also don't know what unrealized recruitment might be, and that is why we set it as a stochastic parameter going forward. It hasn't been realized yet. We might come up with different trajectories,

depending on what expectation of recruitment we have as we run those projections. It is something that I think would be interesting for us to discuss going forward.

MR. CARMICHAEL: If I looked at black sea bass in the table we had from our April report, we reported SSBmsy at 256; MSST at 159, which works out to a ratio of like 1.6 versus the reported SSB over SSBmsy was 1.03.

(Remark made off the record)

MR. CARMICHAEL: That is correct; and let me see if I have that to see how that worked out.

DR. ERRIGO: It was the rebuilding that was questionable, because it was very close. It was just in this year and it had just squeaked over the line.

DR. BELCHER: I guess some of it for me is I would almost like to see more than just one example of the Fmsy, SSBmsy; because as I interpret this, too, I'm looking at it in the standpoint of a bias issue. We have the empirical, which gives us in the case of the SSBmsy is higher than the actual median amount or the mode amount.

Are there instances in which we actually have where our empirical is on the other side of the dome? Because in one situation the empirical is saying our SSB is higher than what the actual projection is saying it is; so in one situation if you go with the empirical value, you have a chance of overshooting. If you go with the other, you could be undershooting.

What about in the situation where your base is actually on the other side of the hill? Do we have that situation happening, and then what does that say? Then in that situation your MCB is saying you have more available than basically empirical is saying. That is where I am just curious to see is like you look at the Fmsy, it is just about on the peak.

Really to me I don't see as much of a concern; but if you have where that base run differs drastically from that peak, making the decision of which you go with has a profound effect on the rebuild; and if you pick the wrong one, one would say it is rebuilding better than it could or one is saying it is rebuilding less than it could.

DR. ERRIGO: Well, yes, and they do show up on either side. It all depends on how the data was that went in and the trend. But also remember that when you are looking at status, is it rebuilt or not, you're not just looking at the MCB versus the base run estimates of the reference points, but the MCB versus the base run estimates of F or SSB in that particular year. They are also different, and they match up with their respective reference points. It is not like you're taking the same number and matching it up against two different reference points. You're taking two different numbers against two different reference points.

DR. BELCHER: Yes, and I kind of understand that, but I'm just thinking about in terms of the information that is going into that again with the idea of running with an empirical approach and using the empirical information, you get one set of information versus what the MCB is actually giving you, which to me is almost showing some degree of the bias of the estimate that we're getting from the model as well, right?

DR. BARBIERI: Well, not necessarily. It depends how you interpret, because this is just a probability of density. In this case, different people are going to look at this and interpret it differently. If we look at the SSBmsy in Figure 1, by chance alone, given the set of parameters and data that we have used to run the MCB, the base case scenario is not the most likely to happen, but it is still near the dome and has a high probability.

To me, I would look at this and say, okay, which one of those is actually plausible. I mean, is this a plausible scenario; or if it came out towards the tail on either side of that dome, I would say, well, the likelihood that what we chose as the base run is not a plausible scenario, it is fairly high. In my interpretation, the Review Panel would have caught that as an implausible scenario that we chose, because we made some deterministic choices for the base run. To me it is like how close is close enough; but are you in that dome, you can consider that a plausible scenario.

MR. CARMICHAEL: This is Spanish mackerel, just looking at it a little bit different, and you see the line for the base run being over to the right of the median on the Fmsy.

DR. BELCHER: I'm not disagreeing with what you're saying; I am just saying that looking at one example; that really doesn't kind of put the thought process in it. Do we have examples where you are actually with enough deviation that those conversations have been had? I mean, you are kind of expecting recall to be high enough to say, oh, I kind of vaguely remember that conversation.

That was my only point was that I understand; but as I'm looking at that picture, I'm also thinking about the impacts of if they're almost thinking about what central tendency and what an empirical value are giving you, you know, at which point are you going to side saying, well, we need to go with the base run because there is too much deviation based on what the MCBs are showing us.

DR. BARBIERI: My answer to that would be in this case none of those examples, because all of those are reviewed and accepted assessments; and one way or the other the choices that the assessment panel made in choosing the base run all turned out to be plausible, in some situations more than others, and the base runs were accepted. We don't see the ones – and I think that because they are already being well informed, it is not just a random pick of those parameters how you configure that base model. It is unlikely that it is going to be towards the tail, I think.

MR. CARMICHAEL: One of the reasons we had this discussion was because of where the line falls relative to the peak. If you can recall the black sea bass issue that first arose was the MFMT from the probabilistic approach was 0.71. That was what was in the projections. That's what went forward and showed an F associated with a 50 percent chance of overfishing being 0.71.

Then you had the deterministic result, which showed MFMT was 0.61. At just a simplistic view it was, well, why is this higher than the MFMT; isn't that overfishing? But the answer is not because of the way the distributions lie. That is why Spanish mackerel didn't come out that way, because the median Fmsy is lower than the base run configuration, so it came out with a lower F.

You will get that black sea bass situation under this preferred approach we have right now whenever you get that peak shifting over to the right of the base. We just have to be prepared to

deal with that and answer that question and say, well, yes it is different between what status is determined on and what is used for the projection purposes.

DR. BARBIERI: Are there any other comments or questions? If not, Mike, thank you and going on to the MSST.

MR. CARMICHAEL: The next item under stock assessment recommendations is dealing with MSST, so this is a blast from the past. You were going to talk about those in April 2011 as it turned out – you had a document from the Science Center at that time – by looking at some alternatives for MSST.

There wasn't a detailed presentation at that time, so the SSC gave a recommendation that basically said you couldn't evaluate it because you think it could be looked at in the future, but you really didn't have enough information there. SEFSC was to provide some more information. Well, nothing has become available so the issue is still out there, and the council is now faced with looking at MSST for a couple of stocks.

The council has often used the 1 minus M times SSBmsy, which is the Restrepo et al default from the SFA years. Then in some cases they've used 75 percent of SSBmsy. In many cases the council is leaning towards using the 75 percent of SSBmsy; one, because I think you get away from the considerable uncertainty that is associated with natural mortality. It is often difficult to know what natural mortality value you should use.

When the data workshop or other analysts look at five or six methods and come up with the age-based natural mortality curve Lorenzen approach, it gets hard to go back and say, well, what natural mortality should I actually use when I'm calculating 1 minus M? It also gives a little more leeway with some of these stocks which have very low natural mortality, which per the logic behind 1 minus M you expect their stock dynamics to be a little more stable.

But the reality of what we deal with is they can often be quite unstable just because of the data that we use to evaluate the world as it really stands. I think for those reasons the council has leaned in many instances towards the 75 percent SSBmsy levels. They would like some guidance and recommendations from you guys on what we might use.

DR. BARBIERI: Okay, comments, questions or recommendations regarding the MSST basis.

DR. VAUGHAN: I would like to keep it pretty simple stupid would be my comment. I agree in the right up here that to use the biomass that can rebuild within ten years or whatever is I think rather strange.

DR. BARBIERI: Any other comments or suggestions?

DR. CADRIN: Really, just long-term agenda would be that MSST optimally would be developed through a management strategy evaluation, which one performs the best in the long term for meeting our objectives. These are sensible and they make common sense, but we really don't know how they perform. It might be that a lower MSST or a higher one performs better; we just don't know that.

DR. BARBIERI: Yes, excellent point, Steve, thank you. I thought that the 75 percent of SSBmsy level was not unreasonable to me. I think that the comments that were made both in our overview document and in the paper that came out of the Science Center regarding the fact that now that we have more control over fishing mortality, the exploitation level, progressively the significance of the rebuilding plan and the biomass status of the stock is not going to be as high as relevant, because we are controlling the main cause up front through the regulatory frameworks and the accountability measures.

If the council is comfortable with 75 percent of Bmsy, personally I will not have a problem with that. I think that another recommendation to the Science Center over the long run will be what Steve brought up about doing the MSEs that would evaluate the performance of different MSST levels.

MR. CARMICHAEL: Well, this is good timing, Luiz. I was just going to suggest that being the time that is about 20 minutes to 12, maybe we want to take lunch before we dive into the Spanish mackerel projections.

DR. BARBIERI: Yes, John, I agree. Let look at the agenda to see what time we should be reconvening.

MR. CARMICHAEL: I see the projections, the SEFIS report, biological sampling targets; so three more topics were planned for this afternoon. I think we can easily get through them.

DR. BARBIERI: Yes, so I would say 1:15.

The Science and Statistical Committee of the South Atlantic Fishery Management Council reconvened in the Crowne Plaza Hotel, North Charleston, South Carolina, Tuesday afternoon, October 22, 2013, and was called to order at 1:15 o'clock P.m. by Chairman Luiz Barbieri.

DR. BARBIERI: All right, we are clear to get started. I would imagine that our webinar connection is on and all of those, including our esteemed member Jim Berkson, have been able to join us.

DR. BERKSON: I'm on now if you can hear me.

DR. BARBIERI: We can.

DR. BERKSON: You were cut out I would guess about five or ten minutes before the morning session ended.

DR. BARBIERI: I'm sorry, can you say that again?

DR. BERKSON: Yes, the sound cut out about five or ten minutes, I'm guessing, before the morning session ended.

DR. BARBIERI: Yes, we had a major electrical problem here in the room and the projectors were not working and all of a sudden something happened that disconnected the webinar.

DR. BERKSON: Okay, I'm back on.

DR. BARBIERI: Okay, glad to have you back, and we're going to resume the afternoon session going to – I think we have completed, John, all of the discussions for Item Number 4 on our agenda and we are ready to proceed to review and discussion of Spanish mackerel assessment projections. For your reference, we have Attachment Numbers 11, 12, and 13 as supporting documents for this discussion item. The overview I believe will come from John Carmichael.

MR. CARMICHAEL: Okay, Spanish mackerel assessment projections; There are a couple of issues here. We didn't have the complete projections when you guys reviewed the assessment and then it was taken to the council. There were some questions about just what the projections showed when compared with what the status of the stock was and concerns about the level of yield that was indicated in the projections.

We had a pretty good discussion, Luiz and I, with the council when we reviewed this and I think came to a lot of good insights about the stock's history and how it was reflected in the model. The good part about that is when we got through with the explanation, a lot of what we said really made sense to Ben Hartig, who has so much history in that fishery, and the peaks and valleys in recruitment and how it affected catches really made a lot of sense.

One of the questions the council had had to do with looking at the productivity estimates and the P-stars, and they were wondering if the SSC perhaps, in considering the neither overfished nor overfishing status of the stock, if perhaps making recommendations based on 75 percent of Fmsy might not be a good way to deal with this population.

They gave a request to us through a motion that is included in your overview that we looked at that as a way of dealing with the selectivity and recruitment patterns that were going on and how they are impacting the short term-yield estimates. That is the explanation that we gave you in the document from the committee meeting. It summarizes the discussion and the explanation that Luiz and I carried through for the council.

The other thing that happened subsequent to this is a realization from the Science Center analysts working on it that there was a problem with the projections, also. As described in Attachment 12, it relates to the age/length curves – what the heck was it; make sure I can get it right – yes the growth curves.

They had male and female growth curves and then they had an overall population growth curve. The model was generally done with the overall population and then the projections were done with the sex-specific growth curves. That created some additional separation between what the model showed and where it ended the population and where the projections wanted to go.

They updated those. There was also an issue noted I guess when they were doing that; that the total discards were not corrected for discard mortality, so there is an adjustment in the discards as well. Basically what you have is a set of revised presentations addressing a couple of technical issues, and then a request from the council that you consider equilibrium-type recommendations based on 75 percent Fmsy for Spanish to get away from some of the population trajectories that you're going to experience in changes in trends in the ACL as a result of just using the straight P-star type recommendation and taking something strictly off of the projections.

DR. BARBIERI: Committee action is requested; for Item Number 1, review the revised Spanish mackerel projections. Are there any questions, comments or concerns regarding the revised Spanish mackerel projections? Right at the very beginning of the report with the revised projections, the analyst explains that the P-star projections that we used the last time were unaffected by that different use of the growth curves.

That is not something that is impacting the results that we had come up with as a result of the P-star projections at 50 percent and I think 40 percent. Unless there are any concerns with the revised projections as presented – again, this is just to basically supplement the documentation that we had for the Spanish mackerel assessment report. Well, hearing no comments or concerns, I think we do have consensus that the projections are accepted as presented.

The next item is to address the council motion to reconsider ABC recommendations and the basis for determining ABC for stocks in the situation that Spanish mackerel is in where abundance is estimated to be very high and the exploitation rates are estimated to be very low; basically the opposite perhaps of the projection situations that we saw with black sea bass where we had a prognosis of strong year classes coming through and expected short-term projections that were over optimistic perhaps relative to MSY.

For Spanish mackerel we had some issues with the estimated selectivities, I think, and some of the issues with the expected recruitment for the short term that informed the projections to be lower perhaps than the long-term average that would be provided by MSY. When I presented that to the council back in June, the council considered our ABC recommendations, which were the projections at P-star at 50 percent for OFL and P-star 40 percent for ABC, and accepted those.

But, considering the status of the stock and the fact that now when we look retrospectively, the stock is estimated to never being overfished or undergoing overfishing. We have a fairly high level of abundance and low exploitation in a stock that seems to be historically very productive. The council requested that we consider, instead of presenting our OFL and ABC recommendations based on our P-star analysis; that we look actually at the values; we revisit that issue and use the long-term equilibrium MSY instead of relying on those short-term recruitment scenarios that we have that will provide for lower yield than what is expected in the long run.

MR. CARMICHAEL: That is right; the stock was at 2.2 times the biomass threshold, the MSST. The exploitation rate was half of Fmsy. But because it is very strongly domed-shape selectivity in the primary recreational fisheries; that yield can basically not be achieved is what the projections are essentially showing, because of a bad year class or two moving through the fishery.

That is being reflected as saying there is really reduced yield with this dome selectivity and everything. I guess in reality you think how the fishery operates, if those fish are not available because they weren't born, then the selectivity may actually shift for a little while to the larger fish which are available.

In reality the fish are probably there and could be taken, so that is sort of the council's concern is you have this population, which seems to have such great status, but the projections are showing your yield is going to have to be held low. I think it is more if the yield turns out to be low

because the fish aren't there, that is fine; but setting a limit, which requires that to happen, is a little less desired.

DR. GRIMES: Basically, the rationale for going along with the council's recommendation is spawning stock biomass is really bigger than what the assessment says it is. In the assessment did they use a flattop selectivity assumption or did they use the dome-shaped? It seems like we need a strong technical justification for going along with this recommendation. If they used dome-shaped selectivity, would that that fix the problem as far as providing a sound rationale for agreeing to a larger buffer or however you want to state it?

DR. BARBIERI: I think that would be hard to tell at this point. The selectivities that are right now being used are actually considered to be realistic. It is the way that the fishery is structured.

(Remark made off the record)

DR. BARBIERI: No, it is not. It is dome-shaped, yes. In reality, basically the fishery is concentrating on a number of age classes, sizes and ages that are medium sized. The large fish are actually expected to be out there as not susceptible to the fishery at this point. Between that and some of the fluctuations in recruitment, we ended up with some projections that were less optimistic than we would expect given the current status of the stock.

I actually had put together a few slides. I don't know if I will be able to do it now off the cuff completely, but I have it in my hard drive here somewhere from the council meeting that went over some of those. If need be, depending how much time, because I think you bring up a good point, Church. I should have prepared better for this and bring a little more substantive points for discussion.

DR. GRIMES: My question is just what is a sufficient rationale? It makes perfectly good sense what they're requesting. We just need I guess a pretty sound basis for deciding to go along with it. What we've talked about; is that sufficient? You're the chairman.

DR. BARBIERI: Well, in my opinion yes. I'm deferring to the committee, of course, to help me make the decision, but I was comfortable with that recommendation, because to me it really made sense. Given the status of the stock, I don't think that there are any concerns. In this situation, when you think about using that equilibrium MSY, you are still using your limit for a stock that is fully rebuilt. It is precautionary or at least not risk-prone strategy, because you are still using your long-term MSY as a limit.

MR. CARMICHAEL: I think it sort of gets at this issue of dealing with the population which has a status like this; but due to the expected trajectories of recruitment and uncertainty and all that you have, where the population is sort of going through this, your strict ABC on an annual basis done from those projections is going to vary some versus the council looking for something that offers more stability in terms of regulations.

I think this is kind of an aspect to me of this whole ACL/ABC business that we hadn't really focused on, but the fishermen and the council often like to deal with kind of a set of years where you have relatively stable regulations if possible. ABCs, the way that they are calculated, we're getting these annual values maybe going up and maybe going down.

In this case, because of the selectivity that is estimated based on the past, it is saying it is going to be very hard to achieve that predicted MSY unless you get just true equilibrium recruitment that moves through. You may have a really good year class and have this huge abundance for a short time, but then next year you get a low year class.

Well, that doesn't give you the same yield as the estimated average that you get when you do the calculations. I think that is sort of what this is reflecting. The council was, well, could you just base OFL on that equilibrium estimate as a stable point and set that in for X number of years? Then that leaves us with coming up, well, how do we drop back from that for ABC? I think if we agree with the concept of giving the council a more stable recommendation for three to five years maybe, then we figure out how we go from OFL to ABC.

DR. DUVAL: That is what we did for golden tilefish as well was we used an equilibrium projection. I'm glad Ben is coming up to the table, because I think between he and Luiz that was a great dissection of the assessment results at the June council meeting trying to determine given that we had not overfished the stock during the assessment period and overfishing was not occurring, why you would see those yield projections go down. If the size of fish that the fishery is selecting for are simply not there, it seems sort of like an unnecessary penalty in a way. Ben can probably shed a little bit more light on some of the discussion.

MR. HARTIG: Yes, sorry, I missed the first part of that. I had a phone call I had to make. Before I get to Michelle's point, talking to John about the stability, we just went through an exercise in stability with Spanish. It was 11 or 12 years we fished at the same harvest level at 7.03 million pounds on Spanish. The stock responded as it does.

We went through year classes in that 11 years where we had good catches and we had lower catches. The stock continues to rebuild under that scenario of harvest that we have now. You have to keep in mind about how the fishery changed dramatically after '95 with the states' imposition of the net ban.

No longer are those runaround gillnets used to target those schooling fish when they overwinter in Florida. When they get in that tight schooling mode, which only occurs in the wintertime in our area; that no longer occurs where you don't have that fishery anymore. You have relatively inefficient gears operating on this fishery through time now.

The stock has continued to put these big fish back into the population, which adds your insurance policy in the number of eggs that you have. But with the discussions we had at the meeting, talking about what had happened with the stock, really with my observations matched perfectly with the assessment, which is rare when this happens; and it did happen with Spanish where recruitment in the early years when the fishery was really hammered was much higher than it is now; and the dispensation or whatever it is that is causing the lower recruitment with the more eggs in a population has always been a conundrum for fishermen to try and understand.

But it is a fact, because I got back into the fishery pre-net ban, two years before the net ban, as the fish stock had been improving with the regulations the council had put in; I got back in the fishery, not in the food fishery but in the bait mackerel fishery where I was catching these 12-inch small fish to supply to the charterboat market for tuna and marlin fishing.

Back then there were these several acre schools of these small Spanish that you could find on a regular basis. As the stock matured over this timeframe since the net ban, the bait mackerel fishery really declined significantly. We still see recruitment but not near the level we saw when the fishery was getting hammered every year and we were taking that many fish out of it, which is hard for fishermen to comprehend.

Now we've got all these big fish, we've got all this egg insurance in the population, but we don't see those giant recruitment swings that we used to when the population was getting hammered. To me as a fisherman looking at this, with all this built-in insurance policy, I don't see any risk to the population of using this different way at looking at what the harvest level should be.

It was a really interesting exercise that we went through at the last council meeting to go through these different questions that I had; and then Luiz and John to sit there and have that discussion, and it was very rewarding from my point to be able to see what I've witnessed actually show up in the assessment, ba-boom, ba-boom, ba-boom.

The other thing was that the earlier assessment, the mackerel stock assessment panel matched almost perfectly with what we had seen on the water as well. All these assessments going in line in the stock gives me very little heartburn about going to that MSY determination level for caps. That is my perspective.

DR. VAUGHAN: Yes, it helped a lot for me. I was going to ask about recruitment and what was going on there. Ben answered that question for me.

DR. CADRIN: First just clarification; it seems that the council has requested that our 2013 to '15 ABC recommendation be based on MSY, because the stock is not overfished and overfishing is not happening rather than the previous ABC recommendation that was based on projected catch and P-star; correct?

Really, the council is making a policy decision to break away from the P-star framework with this. That policy decision I don't think is ours, but I think it is our responsibility to evaluate whether that conforms to National Standard 1 standards, particularly a low probability of overfishing.

If we look at the Document 12, projection corrections – I believe that those would be the appropriate projections – we could take the Fmsy projections from those and that is Table 1. Table 1 is 75 percent of Fmsy. Fmsy is Table 3. The landings projected there, I'm not sure how 2013 will come into this; but looking at '14 and '15, those projected catches are greater than MSY, because the stock is at greater than Bmsy.

Comparing those projected catches of 7030 and 6620 to the proposed 6063; there still is an uncertainty buffer. In 2014 that would be 86 percent of OFL and in 2015 92 percent of OFL. I think that those meet the conservation objectives and would conform to National Standard Guidelines if we were to recommend MSY for 2014 and '15. There is still some buffer for uncertainty there that would suggest that there is a low probability of overfishing.

DR. BARBIERI: Yes, very good point, Steve, thank you. Now, Mike, just to make sure, because I think that would really help with a narrative justification for our report, to have those

points clearly noted. Yes, in this case it does not depart really from the guidance that we have agreed to be consistent with, so very good point.

DR. BERKSON: I'm sorry to interrupt. It is hard to know when is a good time to break in and when isn't. Anyway, I just wanted to very briefly remind everyone that the ABC Control Rule that is in place does include a factor for stock status, so it is not as if that has been ignore or that is being ignored.

DR. BARBIERI: Right, that is noted, Jim.

DR. GRIMES: I just wanted to say thanks, Steve, for that, but that was exactly the point I was trying to make, that we needed a rationale that was consistent with what we've done in the past in order to go along with that.

DR. BARBIERI: Jim, did I hear you having a concern? Overall, in general, the discussion here in the room has been in agreement or there is a consensus that I can sense here in the room with us acknowledging the council's point in getting ready to proceed with revised ABC recommendations based on that request. Do you have a concern with that or questions or comments that you would like to add?

DR. BERKSON: My main comment at this point is just that there needs to be recognition that this is setting a new precedent. If we're going to do that, we need to be very clear about what the likely impacts are. I always am concerned that it will become confusing as to when something like this is applied, when it isn't, to what extent, to what degree. Our existing ABC Control Rule I think is really straightforward.

DR. BARBIERI: Right, Jim, I agree, but actually when we look at the council's request, my understanding is that the council is also asking us to reevaluate how we apply the control rule for situations such as when we have stocks that are at much higher abundance levels with exploitation levels that are estimated to be very low.

DR. BERKSON: I understand that.

DR. BARBIERI: But I get your point; I think that us writing a good justification for going ahead with this decision is absolutely necessary.

MR. CARMICHAEL: It is not a total precedent in that in some other fisheries – and I know that we mentioned tilefish for the council and a way to get stability, especially in fisheries where we see that there is a short-term windfall available from very good recruitment; they've set things like the 75 percent of Fmsy when setting their ACLs.

When there is a windfall situation, then your ABC from these projections is higher, so the council can easily do that. The challenge we have here is in Spanish mackerel where it is just sort of flip-flopped. The council wants to do the same thing it has done for a number of other stocks; it is just finding its hands tied because of the particular trajectory we're in.

We're trying to remember – and I think in black sea bass; is that not the case? Remember black sea bass, as Luiz mentioned, a very different situation where there was a very high year class and

your ABCs were considerably higher than equilibrium MSY, and what the long-term yield potential is of the stock, and I think the council set the ACL at the 75 percent level perhaps.

It seems like to me we set a lower ACL on that than they necessarily had to based on your recommendation. In terms of a precedent, the council has kind of already set the precedent of doing this. They are just in a little bit of a different situation here with Spanish because of the nature of these projections.

DR. VAUGHAN: In the projections, if the recruitment is low, then the projections will be at least initially low. If the projections then go high, if you're just following the projections, then you may be – depending on your faith in the recruitment estimates, you may be underutilizing in the early years and possibly overutilizing in the later years when the projections may jump up for a spell.

The question is how do you balance this out? Is that the intent of using the equilibrium MSY to get around these gyrations by the projections; because if you want to take advantage of what is projected to be high in five years, do we cut off that possibility to allow for larger landings in the earlier years under these circumstances that you think everything is fine. I'm just trying to figure out how we're going to be consistent.

DR. BARBIERI: I think the consistency, the way I see it is collectively here how do we see – as Steve explained and Church – how do we see our decision in light of the National Standard Guidelines, right? The fact is that there is a very, very small estimated – very, very small probability that this stock will become overfished or undergoing overfishing.

In that case what they are saying is for management and stability, can we look at another reference point that is not a short-term-based reference point. It is longer term but it is still in line because we're still talking about MSY as a limit reference point here. It is simply the long-term average that might be more reflective of that long-term productivity of the stock that will allow the stock to fluctuate up and down and we stay consistent with that average.

DR. VAUGHAN: My only concern is that if we then start shifting back and forth to take advantage of when it's high versus when it's low, are we going to be consistently – as long as the stock is viewed as very strong, are we going to consistently apply that equilibrium MSY, which I agree with, or are we going to do it when it is convenient and then not when it is inconvenient? That is my concern.

DR. BARBIERI: Exactly, and that is an excellent point. This is something else, Mike, I think is another important bullet there for us to capture.

DR. ERRIGO: Yes, and I'll do that. I just wanted to mention I remember having these very similar discussions and we were talking about black sea bass, and it was made very clear to people that the choices are either if you go with projections, you follow recruitment and this and that, and you go up in good years and down in bad years, or you choose stable landings and in bad years you get to still harvest that and in really good years you only get to harvest that through time. Then that level might change at an assessment.

Say you do your assessment and it says, well, MSY is actually here instead of here; then you can shift your OFL and ABC based on the new assessment's estimate. That was how the discussions progressed at that time. I think that is how the understanding was. I will definitely note that in the notes here.

DR. BARBIERI: Yes, excellent point as we write our report and justification and all those issues. Are there any other comments, questions or concerns? Jump in if I'm overstating your desire here, but what I'm hearing is that the committee is agreeable with the adoption of the revised ABC recommendations for Spanish mackerel and that those ABC recommendations are going to be based on an OFL value equal to the equilibrium MSY; that we will basically consider this as a special case and not apply our ABC Control Rule. We are going to set ABC equal to OFL.

MR. CARMICHAEL: For 2013 to 2015.

DR. BARBIERI: For 2013 through '15. Just as a reminder, because we have been in this situation of special cases in the Gulf, we had to consult with legal counsel and review very carefully National Standard Guidelines 1. We are allowed as an SSC to depart from catch-level recommendations as determined by an ABC Control Rule if we provide sound justification.

I think that the arguments between what Church, Steve and Doug brought up reassures me that we have good justification and we can document this properly. Okay, I don't know, John, if you have the values there and if we need those values to fill that table; is Fmsy their equilibrium?

DR. BELCHER: I don't want to belabor the point, but I am trying to wrap my head around – so how did our uncertainty get better in the science that we're willing to put OFL and ABC equal to one another? The science is still the same.

DR. BARBIERI: Do you want to address that, Steve?

DR. CADRIN: Yes, I guess if you look at the Fmsy projection, OFL and ABC are not the same. That was kind of my point is that projected OFL is actually greater than MSY. There is some buffer, but your point remains that it is the full P-star framework suggests there should be a greater buffer and uncertainty hasn't decreased. My only point was at least there is still a buffer, and so it kind of passed that first criterion of meeting the standards. But you are absolutely right; we shouldn't be implying that there is more certainty now.

DR. BARBIER: Right, but maybe I'm confused here. I know that in the previous action we accepted these projections; but then the projections for '13 through '15; how do they compare the landings –

MR. CARMICHAEL: I think Steve pointed out the difference between that equilibrium MSY and the projections of yield at Fmsy; something about 86 percent or so, I think. What I had just done as a comparison, and to consider what Carolyn mentioned, is I looked at your original recommendations based on the P-star runs and just looked at poundage to make it apples and apples, because a 10 percent reduction in mortality or a 10 percent reduction in the probability of overfishing doesn't equate to a 10 percent change in pounds, obviously.

The difference in 2015 between OFL and ABC based on your April report was 7 percent. In terms of actual poundage, there is a greater buffer under this approach. If you go with the 6.06 million pounds as OFL equals ABC and you look at the Fmsy projections, there is a greater poundage buffer than what you had originally.

DR. BARBIERI: I got your point now, Steve – I guess I had missed it before – that you're thinking we set OFL at the equilibrium MSY, but we use the projected MSY.

MR. CARMICHAEL: Right, so the OFL becomes the projected yield at Fmsy. The ABC becomes the equilibrium estimate of MSY; those 6.06 million pounds that was in the report.

DR. BERKSON: I think it is probably important in the documentation – I know this is implied, but to actually state that this was a request from the council for this change and that we reviewed it and reviewed it for its appropriateness to stress that this was not a change in the ABC Rule that came from the SSC. I think once again it is the precedent; but if we're going to stray from our ABC Control Rule, which you pointed out the Gulf Council has the precedent for doing, if we're going to do that, in this case it came from a request from the council.

DR. BARBIERI: The SSC recommends setting the OFL at the projected yield at Fmsy for '13 to '15, and that the ABC be set at a long-term equilibrium MSY value from the base run as was requested by the council. I think it would be helpful, even though we have that in our overview document, to actually write that value there. My confusion with that choice that we made and the argument that –

MR. CARMICHAEL: The math is hard because we have – I've got to see if that is total yield, landings and discards. This table is landings and discards separate.

DR. BARBIERI: John, since we seem to have some extra time this afternoon, I think that would be worth finishing this right now and searching for the right numbers there.

MR. CARMICHAEL: The one thing to consider; because if you look at how Attachment 12 is with the projections, they did give an Fmsy and then they give the 75 percent of Fmsy, because that is consistent with what the council has done in some cases. We get a sense of what the landings are at that level, landings and discards separate. That is another alternative that we've looked at. You could set ABC based on the 75 percent of Fmsy level.

DR. BELCHER: I think some of it, too, is I am trying to wrap my head around – there is a statement in the briefing book that says. "In addition the council is willing to accept the risk associated with small buffers between OFL and ABC." What is the risk assessment being based on? What is the probability of the risk involved in that? Most of us wouldn't sign off on an insurance policy without looking at the pros and cons or the risk value associated with that. How do we really know what that risk is?

DR. BARBIERI: That's a very good point. I would say that right now we don't know what the exact value is from a quantitative perspective. But qualitatively, when you look at the standing stock out there; that is over two times the value of biomass at MSY. I wonder if the probability of overfishing that is being generated by our P-star estimate is actually quantitatively correct, if

you know what I mean, that there is an actual 40 percent probability of overfishing given the high level of standing stock and a low exploitation rate.

DR. BELCHER: But at least we're basing it on some degree of information. The other one is just kind of taking blind faith assumption that you believe that those ratios are correct as well. To me it is kind of a double-edged sword in that. We're trying to use information that is there to inform ourselves as to what our buffer and our chance of risk should be based on the information at hand.

This other one we're trying to use logic and a good progress to say that we should be able to reason away from it; but it is still that idea of where we're putting some degree of level of risk association with what we're proposing for numbers. Now we're kind of doing it with a faith approach of what the risk is or isn't going to be.

DR. BARBIERI: I would disagree with that in a sense that I don't think it is faith. I think we exercise our professional judgment; and since we have already accepted the assessment as representing best available science, we have a high degree of confidence on the status of the stock. What is the probability with the level of landings that has existed over the last 10 or 15 years that the stock is going to fall below the biomass that is considered sustainable or that the exploitation level is going to go higher?

To me we can exercise that judgment and say the probability is probably very, very small. Again, it is one of those things. I think it is another philosophical discussion. I feel that sometimes as SSCs we get so caught up in our procedural steps that we set and some of the guidelines and all, that it kind of hamstrings us into addressing some of the council's requests.

I think that the committee is trying to be flexible here, look at the council request and judge whether there is any reasonable probability that this stock, using this catch level recommendation, will become overfished or start undergoing overfishing. I think we can safely say that even though we don't know what that number is probability-wise, that probability would be very small, and that the benefit of providing the council with a constant level of – I mean, a stability in landings over the next several years would be large.

MR. CARMICHAEL: Yes, so the landings we were looking at for OFLs, so that is the landings' values. We can fill in landed pounds and discard pounds, landed number and discard number as Table 2 there. We can give that for OFL. For ABC, if you go with the 6 million pounds, we don't have the discard breakout for that, but you could treat that as the landed pounds.

That then gives you the buffer that Steve mentioned in looking at it with Table 3 of 14 percent in 2014, decreasing to 7 percent in 2016 in terms of total poundage buffer on the landings between ABC and OFL. I think the risk comes into the judgment of a stock that has been fishing at half Fmsy and is 2.2 times MSST, and it is a short-term recommendation. It's good for three years. If it blows up, you'll be looking at it quickly and there is a lot of cushion there.

I think the discussion here underscores the need maybe to come back at another meeting and really think about what is a good way to get some kind of longer-term more stable recommendations. Maybe we ask the council do you want to look at something that gives us projections incorporating the P-star; but rather than being an annual basis being on a three-year

block; or, does the SSC maybe in the future want to consider alternatives where perhaps we average our recommendations across years?

There are pros and cons to those and we can do another evaluation much as we did for the probabilistic thing. We can have a little time to think about the best way to handle it. But, it seems clear to me from sitting here and sitting at the council, the council would like a way to get some stability, and we don't get it from strict P-star as we've applied it, so we need to maybe come up with a little different tweak to this system.

DR. BARBIERI: I understand the concerns, because I think that they are valid. I think this discussion helps us document how we are making this decision and what we consider would be the right procedures going forward. I like the discussion; but in my judgment, the probability of overfishing –

DR. BELCHER: I think part of what my head keeps wrapping around is the fact that the argument is being made to change OFL, which to me OFL shouldn't be as moveable a target as an ABC moving closer to an OFL. The idea of setting an ABC, that again you come up with the MSY value is below what you have for recommended OFLs as Steve was saying, what is currently there, if what is being proposed as an equilibrium is below all of those – and I understand setting it for a constant provided it is below all those things; but the way it was stated to me was it sounded like we were trying to find a way to take something like OFL, which to me generally is not a sliding bar; you know, we're setting the bar at what point we're saying fishing levels are over this amount are going to cause overfishing.

It is not raising the bar so that overfishing doesn't happen. Do you see what I'm saying? The ABC; I get the idea of here is a ceiling and we're trying to come as close to the ceiling as we can to maintain a steady catch stream; but doing this kind of approach where the bar is going up as an approach to make sure that ABC stays where it needs to be is not necessarily the same approach.

DR. BARBIERI: Just to that point; keep in mind that the level of confidence that we have on the projection is already dependent on some assumptions, how much faith – as Doug put it, how much faith we have on unrealized recruitment in the future. When we are projecting and we are using those projections, they really represent our best estimate of how the dynamics of the stock is going to change over the next several years.

Now, when you look at the equilibrium MSY, actually that is a value, a figure that is estimated with a much higher degree of confidence than what we get out of those stochastic projections. The projections are actually responding to changes in recruitment. They go up and down. When we are actually proposing that equilibrium MSY value, it is saying, okay, if at least we can keep the stock at this level here that is average; it doesn't matter it fluctuates a little bit up and down given good or bad years of recruitment.

DR. BELCHER: Yes, and I understand that.

DR. BARBIERI: I don't think that is moving the OFL. The OFL projections already change given the expected recruitment.

DR. BELCHER: I thought our projections were ABCs. They are not OFLs; are they?

DR. BARBIERI: They are both.

DR. BELCHER: Maybe that's why I'm getting – because I'm focusing on it from the standpoint of thinking about that what we're offering is an ABC, projections of ABC. I understand getting a flat level provided that again what is over top of it is having this kind of fluctuation. I understand that point of it; but that is what I'm saying is to me the OFL isn't necessarily the one that is being adjusted. It is more of the ABC that I'm thinking is being adjusted.

DR. BARBIERI: No, we project forward.

DR. CADRIN: I guess I would need to back up to what I was going to is that the basis of the OFL hasn't changed; the values of the OFL have changed because of the corrected projections. If you go to Document A-12, they explain the need for the corrected projections, because the growth curve was inconsistent between the base run and the projections.

There were OFL projections as part of SEDAR 28, so that is Figure 355. All Table 3 does is updates that with a different growth, so they corrected the projections. The basis of the OFL didn't change; the values of the OFL changed because of the corrected projections. All I was doing was saying that if the council is proposing to use MSY as the ABC, they are still less than the OFL in the short term so there is a buffer.

It wasn't intended to change the OFL to get the ABC to work at MSY; it was just kind of a test. I would have been against that proposal if the MSY were greater than the OFL projection, and they're not. Now whether the buffer is appropriate, in a way that is a risk policy. That is why I think if the council and the committee have explicitly voted for us to consider this, they've made a policy decision.

It seems to meet National Standard 1 Guidelines, although it does break from our risk policy that we've been using. The only thing I was going to say before that came up is looking through SEDAR 28, all of the sensitivity runs suggest that overfishing is not occurring and the stock is not overfished. I agree that there is pretty good certainty in that stock status.

DR. BARBIERI: John, you are looking at the actual values there, right? We have the landed and discarded. I think we have very good information now. I appreciate everybody's input on this, because I think this is the kind of thing that when we depart a little bit from what is our usual rule of thumb, we want to make sure that we have strong discussion and justification.

DR. REICHERT: Perhaps in terms of the risk of overfishing, if you look at the landings in the report – that is on Page 346 of the assessment report – I think only in '91 and '93 did the actual landings exceed this number. That provides perhaps another reason to say unless something drastically happened in the fishery; based on the history of the fishery, even in recent years there isn't a high likelihood that we would exceed that number. In terms of the risk of overfishing, that may be something else that we can look at.

DR. BARBIERI: Spanish mackerel seems to be one of those stocks of pelagic fisheries where the –

MR. CARMICHAEL: What page, Marcel?

DR. REICHERT: Three hundred forty-six; it is Table 3.10. That is the total landings in pounds plus total discards. If I interpret that correctly, then I think only in '91 – since 1990, only in '91 and '93 did the landings exceed the 6063.

DR. BARBIERI: But on that same point is the fact that basically the stock has over the long term been able to sustain that level of harvest and still was never overfished or undergoing overfishing, and we are not discussing any substantial increase in harvest from the average that it has had over the last 15 years.

MR. CARMICHAEL: Yes, I think this is very much preserving the status quo of the fishery versus the recommendation that we had in place was causing a reduction in a stock that has had an F over Fmsy of less than one since 1980. It has had a pretty low exploitation rate. In terms of Spanish mackerel that is many, many generations of Spanish mackerel.

That is a lot of changes in the economy and fishing effort and interest and everything else. Really, in a lot of ways this is just putting something out there. It doesn't mean the fishermen are going to catch all that. As Marcel pointed, out in the past that quite often they didn't. Collectively, there are a lot of reasons why the overfishing risk is extremely low.

DR. ERRIGO: Just a small note; those years you mentioned are all prior to 1995, which is when the net ban went into place.

DR. BARBIERI: I think we are clear, and I appreciate everybody's participation in this discussion. I think that over time we are able to fill in a whole bunch of those points that we needed to make sure that we have a good justification in our report. Are we ready to move on?

DR. BERKSON: Luiz, I've got one more question for you. I want to just double check something. Now, we're using a base run Fmsy, right, and a projection-based OFL in terms of the catch. Don't we need to be setting that OFL based on the deterministic projections from the base run? Aren't we kind of getting it confused? It is just sort of a semantics calculation issue.

MR. CARMICHAEL: Table 3 says it is the deterministic runs in number of fish projected landings and discards. OFL is coming out of Table 3, so I think we are.

DR. BERKSON: Okay, so that is out of the deterministic projections?

MR. CARMICHAEL: That is what the table header says.

DR. BERKSON: Okay, wanted to double check. Thank you.

DR. BARBIERI: Unless we have any additional comments, questions or concerns here, I think we are settled with the Spanish mackerel OFL and ABC, revised OFL and ABC recommendations. Our next item for discussion is the SEFIS update, and we're going to have Todd Kellison give us a presentation. We might need a five-minute break.

DR. BARBIERI: Before Todd gets started, I want to thank him for taking the time to come give this presentation. The committee had a lot of discussion about SEFIS and some of the improvements that this video index is something that has sparked a lot of interest. We appreciate, Todd, you taking the time to come give the presentation in person. If you are ready, I think we are for the presentation.

DR. KELLISON: Okay, first, Luiz, I'll return that thanks. Thanks for giving me the opportunity to be here. For those who don't know me, I am Todd Kellison. I'm with the Southeast Fisheries Science Center up at the Beaufort Laboratory where I oversee a branch that includes the Southeast Fishery-independent Survey group; or SEFIS group.

I'm happy to be here today to talk a little bit about – I also wanted to note that I did try to look exactly like the Chair of the SSC today. I'm hoping that I'm going to get a couple extra bonus points for that. I am happy to be here today to talk a little bit about our cooperative video survey in the South Atlantic, our efforts and plans for developing indices for the assessments' plan for 2014 and beyond and definitely in receiving this group's feedback on what we're doing and where we're going. Thanks again for having me here.

One note as we start; I've listed this as the MARMAP/SEAMAP-South Atlantic/SEFIS video index development. That is a mouthful. All of us involved in those groups have tired of listing those names repeatedly, so we began referring to ourselves as the Southeast Reef Fish Survey, sort of. I apologize for expanding the acronym universe, but we do hope to simplify things a little big in the future. We are SRFS.

My plan today is to talk a little bit about – give some background on fishery-independent survey efforts in the South Atlantic, talk about some specifics in terms of the methodologies of our video surveys and then end with where we stand and where we're going in terms of the video index development.

As background; fishery-independent sampling in South Atlantic waters from the 1970s through about 2008, MARMAP was essentially the sole fishery-independent data collection program in the South Atlantic. They have utilized a variety of gears over time. Their primary gear since 1990 has been the Chevron trap, although they've also used a number of other gears consistently during that time such as the short and long bottom longline.

In 2009 SEAMAP South Atlantic began providing supplemental funds for the MARMAP surveys. In 2010 our SEFIS group, Southeast Fishery-independent Survey Group was formed out of our Beaufort laboratory with the task or an objective of working with MARMAP to increase sample size for fishery-independent surveys in South Atlantic waters, to increase a spatial distribution of those surveys, and to implement a new survey gear video, which I will be talking about today.

Beginning in 2010 through this year and looking ahead, our groups, MARMAP/SEAMAP South Atlantic and SEFIS, or the Southeast Reef Fish Survey, have been working cooperatively to survey South Atlantic reef fishes using both Chevron traps and video. I'll note here that beginning in 2010 – and we've continued this every year, so since our creation of SEFIS, the MARMAP/SEAMAP South Atlantic efforts have been in North Carolina and South Carolina waters and our SEFIS group has been surveying in Georgia and Florida waters.

We just distribute it, because it makes things logistically more efficient, we believe. We make every effort to ensure consistency of methodologies. From the beginning on every SEFIS cruise, MARMAP personnel have been involved. We use exact same methodologies between the two, even though the different groups are surveying in different areas.

A little background on video survey in the southeast, in the Gulf of Mexico video surveys have been utilized for a number of years. They are carried out by two NOAA Fisheries Laboratories, the one in Pascagoula and one in Panama City; and also by the state of Florida. Those three groups work together to use consistent methodologies to survey reef fish in Gulf of Mexico waters.

Those groups tend to use stand-alone video camera arrays such as pictured in the top right there of the slide, and they tend to use – all cameras are either stereo video or at least some of the cameras are stereo video. In the South Atlantic we have some differences from the Gulf surveys. Instead of having stand-alone video camera arrays, we have attached our video cameras to traps.

We put a lot of thought into this process before the surveys began. Ultimately we made this decision to mount cameras on traps instead of on their own frames after consultation with our assessment personnel, our stock assessment scientists who indicated that we really couldn't afford to decrease the number of trap deployments that we had.

We depend heavily on the trap-generated index for a number of species and also because we get all of our fishery-independent biological collections; otoliths and gonads from those traps. They indicated that reducing the number of trap deployments to implement additional video surveys would be a bad idea. Thus, we combined the two essentially.

That is a major difference between the South Atlantic and the Gulf. Then also as of yet we're not utilizing stereo video. That is predominantly because we have a much greater likelihood of losing gear in the South Atlantic than they do in the Gulf. We tend to deploy in a lot of high-current, high-relief areas. It is unfortunate, but it is a reality that we lose traps every year.

The video array that you see in the top right there used in the Gulf is probably an $85,000 investment to build that. It is just not tenable for us to lose four or five $85,000 units a year. Thus far we've not been using stereo video. I should note the majority of that cost for those video arrays is in building the stereo video cameras. They are not inexpensive to put together.

We have been pursuing development of lower-cost stereo video configurations and continue to pursue that. We have some funding right now and we're working with some people in the physics department actually at the University of Miami to try to develop some low-cost stereo video cameras. We do envision going that route in the future – well, hope to get there soon.

In terms of where we put cameras on our traps, for the camera that we use, the video that we use to enumerate fish; that camera is mounted over the mouth of the traps. The next sort of two sub-bullets are important, and I suspect that we may talk a little bit about these afterwards. We mount our camera over the mouth of the trap to count fish.

In 2010, as our survey was just getting started, because of the long procurement process in the federal government, we did not have time to get the cameras that we anticipated using, which are

Canon cameras, which is what we're using now, and so we utilized GoPro cameras over the mouths of traps. In 2010 we utilized GoPro cameras; beginning in 2011, we've utilized high-definition Canon cameras. The Canon camera is the black housing camera closest to us in that bottom right picture.

On the nose of the trap, the farthest in that picture, you can see a little GoPro camera. Different cameras were used in 2010 than have been used subsequently. Then also importantly in 2010 only our SEFIS group utilized video cameras. In 2010 we only have video from Georgia and Florida waters. In 2011 the video survey went system-wide, and that's when the Canon video cameras were implemented as well. I'll come back to that probably a little bit later.

I will note that this year we've been putting a lot of effort to perform a calibration study for the GoPro versus the Canon camera, so we've been deploying traps that have both the Canon and the GoPro mounted over the mouth so that we can compare counts and hopefully we can calibrate the two when developing the indices.

We typically mount that far camera, it's a GoPro seen here; sometimes it has been a still camera, but we utilize that camera for collection of habitat information. This is just a table to make a point that we've been considerably increasing our sample size over the past few years. You'll see a column average, 1990 to 2009. Marcel was asking me about specifics of these numbers this morning, but it is just showing a general increase.

You can see that we increased every year through 2013 where we've got more than 1,500 trap and video deployments. I expect that number is probably going to plateau at about that number barring a significant increase in our sea days. The months sampled stay roughly the same, but also note that that bottom row, total mapping.

I just included that to show you that we've been spending a lot of the effort both through the multibeam mapping and also with a number of other sources; both our SEFIS group and Marcel's MARMAP/SEAMAP South Atlantic group to work with fishermen and other sources to increase our knowledge of sampling distribution.

That has resulted in a real change, a sort of filling in of our sampling universe. The figure on the left here shows the sampling universe, hard-bottom sites that were sampled, or a subset of those sites was sampled every year for the survey. You can see in 2012 we filled in a lot of the gaps in that sampling universe, and we continue to do so. This year in surveys that we've already done, we performed a lot of multibeam surveys in this area, this area. We filled in a lot of additional sites down here, which is definitely red snapper country, and also in this area here.

We have about 30 days planned of sea days on a NOAA ship next year where we plan to fill in sites in this gap here. We've been making a lot of progress and filling in the sampling universe as well. How are fish counted on video? Video surveys are used in a number of marine systems worldwide, and they are typically used to generate relative indices of abundance as opposed to absolute counts.

With these relative indices, there is a goal of having a linear relationship between the video abundance metric and true abundance in the area. We hope that relationship is linear. People

that have used video have used a lot of different ways to count fish on video. Maybe the most simplistic way is just to count all fish seen.

For example, reviewing 20 minutes of video and every time a red snapper comes on, you count that fish. That is a lot of potential problems, the most important being probably the potential to multiple count the same individual. If it goes out of the screen and then comes back in, you would count it again and again.

Other people have used the time to first arrival with an assumption that fish that were more abundant in the area would show up on the video more quickly than fish that are less abundant. That assumption has a number of problems as well. Maybe the most commonly used metric – and this is a metric that is used in the Gulf of Mexico – is counting for a length of video watched; determining the maximum number of a single species that are seen in a single frame.

You know that there are at least that many individuals around. Again, this is what is used in the Gulf of Mexico. They call this metric the min-count, and I'll come back to this on the next slide. They call it the min-count, because at minimum they know that there are that many individuals around.

A new metric that our group in Beaufort has developed is the mean number or mean count from a series of frames. This is what we're using. I want to note clearly that we plan to use a different metric for the South Atlantic than is used for the Gulf of Mexico. I'll talk a little bit about that here.

The Gulf of Mexico for NMFS, the fisheries labs in the state of Florida utilized this maximum number seen in a single frame, or min-count. We are planning to use this mean number from a series of frames where we read a length of video and we look at specific frames within that length and calculate a mean across those.

Why the difference in approach is Zeb Schobernd, Nate Bacheler, who are at our lab now in our SEFIS group, and Paul Conn, who was a stock assessment scientist at our lab previously – he is now working in Alaska – they've put together three lines of evidence that suggest that mean count is probably more linearly related to abundance with increasing abundance than is min-count. Another way to say that is that min-count may increasingly underestimate true abundance with increasing abundance.

Those multiple lines of evidence were simulation studies; which I've got a figure from that shown on the right – and I'll walk through that in a moment – some empirical work, some camera trials with pinfish done in a tank environment and also by directly comparing min-count versus mean count data calculated from the Gulf of Mexico surveys.

All of those suggested that mean count more accurately tracks true abundance as abundance increases. The figure that you see on the right, the X axis is true abundance, which is increasing from left to right. The Y axis is mean count as they filled the dark circles, and min-count is the open circles. The top circle is for fish that were moving in the models. This is simulator-response model fish – fish in the model that were moving more slowly. The bottom is fish that were moving more quickly.

In both cases you can see that the filled circles or the mean count has a generally linear relationship with increasing abundance, and the min-count tends to begin to asymptote with increasing abundance. Again, results were consistent across this simulation approach, empirical observations, and by a direct comparison between the two.

Those results are outlined in a paper that is in its second review at Canadian Journal right now. I do want to note that both approaches have pros and cons. We spent a lot of time talking with our assessment scientists and assessment scientists from the Gulf of Mexico. Rick Methot, the NOAA Fisheries chief stock assessment scientist, has been involved in those discussions.

Out of all that we had decided that the mean count approach is the best approach for us to use in the South Atlantic. I do know that both have pros and cons, and it is likely to think that the mean count approach that we plan to utilize is going to have higher CV values than the min-count approach would.

Given that, how do we count fish on the video? Like it is done in the Gulf of Mexico, we take a 20-minute video segment. We deploy traps with cameras attached. The cameras are recording, they hit the bottom and they report for the length of the trap deployment. But when we come back up and take those videos, we only read 20 minutes of that video; and that is consistent again with what is done in the Gulf.

We begin those 20 minutes 10 minutes after the trap reaches the sea floor. We make species-specific counts for each of 41 one-second intervals based 30 seconds apart. That adds up to 20 minutes of video. Then for each of those 41, one-second intervals counts are made for any of 107 priority species observed.

This is an important point; also we do not read the video for all fish. In the Gulf of Mexico they are read for all fish. I think it is an important thing to do. Our issue has been manpower. The more species that you read video for, the longer it takes to read those videos. We definitely have an impetus to get videos read quickly, so they can be ready for the assessment.

This is an important issue and maybe it is worth discussing here. We read videos for 107 priority species. Those are all species listed on the fish stock sustainability index. Then species that are not on that index that are – well, snapper grouper, jack, tilefish and highly migratory species that may not be on an FSSI list, and also lionfish.

For each of those species, for any of them observed within a 20-minute segment, a mean count value is calculated for each priority species or for each of those species. That is just simply equal to the sum of all the 41 counts divided by 41. That is our methodology. In terms of preparing for the 2014 assessments; as John indicated earlier this morning the data workshop is planned for early August 2014.

There are currently plans for the red snapper and gray triggerfish benchmark assessments. We anticipate having 2010 through 2012 video data completed, having gone through a rigorous QA/TC process by December of 2013. I would note that 2010 and 2011 data are already ready QA/TC, and then we're currently finalizing the 2012 data.

Then we expect to have 2013 videos read and QA/TC by June 2014. In terms of developing an index of abundance for red snapper, gray triggerfish and then other fishes in the future; again, our response variable will be the species-specific mean count. This coming year and in future years we anticipate developing the indices before the data workshops.

Last week I began discussing with John Carmichael having some type of multi-agency workshop or at least a working group that would include survey members from our SRFS group, survey members from the Gulf of Mexico, assessment scientists from the Gulf of Mexico and South Atlantic as well.

I think it is important to include the Gulf of Mexico people, who have experience developing these indices. We anticipate having some type of workshop or working group to develop these indices. We anticipate exploring a variety of analytical approaches, including zero-inflated negative binomial models, Delta GLM, and Delta GAM models.

Already Nate Bacheler in our group and Lew Coggins in our stock assessment group have been working also on some occupancy models and thinking about some end-mixture modeling approaches that might be utilized as well. While maybe some preliminary work has occurred in exploring some of these different approaches, our plan is to begin the full index development as soon as we have three full years of data available, which would be now in December 2013.

Before the shutdown, we had anticipated a little sooner than that, so it has pushed us back a little bit. Our group that will be developing the index has been thinking a lot about this. They've listed some of the possible or maybe probable covariates that will be included in these modeling approaches here on the right.

From some of the preliminary explorations, this top four appear to be pretty important as might be expected. Season there might mean month or day of the year or some kind of seasonal component; but also note that we anticipate including habitat information. We collect information on like the cover of both hard-bottom and live, like attached biota habitat, so the cover of those, what types are there, and then the vertical relief of both of those types of habitats, so we can include that information as well; bottom temperature, potentially time of day.

Current direction or speed, which we're getting sort of qualitatively from our video survey, could be important, thinking about which way the bait plume is extending might affect the numbers of fish on the video. Then also water clarity as well. We do see a range of visibilities from excellent visibility to you can't see anything.

We have a number of ways to include that, including measures of, for example, transitivity from our CTD pass, which we make for every six trap camera deployments. Then we're also scoring water clarity qualitatively as well. Nate Bacheler, who heads our SEFIS group, has done some preliminary explorations with occupancy models looking at the sensitivity of species-specific frequency of occurrence to water clarity for visibility basically.

He's found that frequency of occurrence seems to be very insensitive to variability and visibility. If species are around, it seems like we're seeing them on the videos. It is yet to be clear whether visibility might strongly affect the relative abundance on the videos; but at least in terms of

whether they're present or not, it seems like water clarity doesn't have much of an effect on that. I think that I will stop there and say thank you and then try to respond to any of your questions.

DR. BARBIERI: Thank you, Todd. Are there any questions or comments for Todd?

DR. SEDBERRY: Todd, thanks a very nice presentation. I was wondering if you've had any chance to look at the effects of one species on another. If the first species that shows up, for example, is a barracuda or large grouper or something like that; does that have any effect on what you might see subsequently in subsequent frames?

DR. KELLISON: That is a good question. I think the answer is, no, that we have not started to perform those analyses. We have looked at that a little bit, begun to look at it a little bit with the trap catches in terms of what is going into the trap affecting what else is going into the trap or vice versa.

I guess one can envision if there is a bunch of prey fish, you might get predator fish going into a trap. If there is a predator fish in a trap, you might not get prey fish going into a trap. We've begun to look at that a little bit with the trap catches. I think probably we would get to explore it with video. I see Marcel with his hand up, but certainly a point well taken and that is something that we can look into.

DR. BARBIERI: Marcel, do you have something to add to that?

DR. REICHERT: Quickly to that point; one of our PhD students is actually looking at historical MARMAP catches and seeing what happens in the trap if we catch a large predator; and also looking at inside a trap camera, so looking at species interactions as part of her dissertation research. We are currently looking at that.

DR. DUVAL: My question had to do with the sampling effort, the maps that you showed of the expanded range now that SEFIS is on board and you're now SRFS, asking Marcel if there was any sort of little Freudian thing going on there with the whole medieval connotation of serf, but that can be another conversation.

DR. KELLISON: No comment on that, Michelle.

DR. DUVAL: The map with all the different sampling sites; that is the sum total of all the sites that you would then subset from for a particular year, is that correct or no?

DR. KELLISON: What you see on the right is after 2012 is the sum total of all of our potential sampling size.

DR. DUVAL: You're not necessarily sampling all of those sites every year?

DR. KELLISON: That is correct.

DR. DUVAL: Then when you are selecting sites for sampling for a particular season, is there some effort given to ensuring that you're having some consistent or well-spread-out geographic

coverage throughout the region? I recognize that you guys are trying to fill in some gaps within the habitat mapping piece, but just in terms of distribution of sites.

DR. KELLISON: Right; a first response to that is that as of yet this survey is not stratified. There is not a systematic approach to ensure that that sort of equal distributional sampling occurs over the sampling frame. I would say that with our very significant increase in sampling size over the last few years; that it has not been such an issue, because we are getting good coverage across the entire system.

That doesn't mean that we shouldn't have a stratified approach, and in fact many of you know that – was the review in 2012, Marcel? In the spring of 2012 we initiated an expert review of our fishery-independent survey programs in South Atlantic waters. In the report one of the recommendations was that we do move to a stratified design, which I think all of us would agree that that makes sense.

They didn't recommend exactly what the strata would be, but probably it would be some depth strata and some latitudinal strata. I think maybe as early as next year – we've continued to talk a lot about that and maybe as early as next year we'll implement something like that. But I will note again that it hasn't been such an emergency issue for us, because we have been getting good distributional coverage, I believe. Do you think that is correct Marcel?

DR. REICHERT: Yes, I am very comfortable to say that we are hitting almost every cluster in this sampling universe between SEFIS and our program.

DR. KELLISON: I should also note, just because we have these figures out, the one on the right represents our sampling universe at the end of 2012, but there are a lot more points in our universe than you can see on that, because there is a lot of overlapping dots on there. Marcel, do you know what the number was at the end of last year; it was like 2,500 or 3,000.

DR. REICHERT: Yes, I think it is close to 3,000 sampling sites.

DR. BARBIERI: Any other comments, questions or suggestions for Todd?

DR. SEDBERRY: Just one comment; as far as the current direction, in addition to there being a bait plume, a lot of these fish just orient to things on the bottom, either up current or down current, as you know, and that trap adds additional relief, and I think some fish just orient to that trap based on the current location. You might want to look at that, too.

DR. KELLISON: Great point, George, thanks.

MR. COLLIER: When SEFIS was being developed, they said we need a certain sample number. You guys are exceeding that sample number now, right, in the combination. I think it was 1,500 to do the South Atlantic. Is that what the recommended level was?

DR. KELLISON: That's a great question. You have a better memory than I do, Chip. In 2009 we had a workshop in Beaufort that involved representatives from a number of different survey agencies, state agencies, federal agencies, commercial, for-hire, and I'm not sure if recreational industry was represented as well; but we got a lot of people and we spent a lot of time thinking

about fish together to try to make some recommendations about how best to carry out fishery-independent surveys in the South Atlantic.

That was sort of the precursor to the establishment of our SEFIS group and our cooperative efforts now in the South Atlantic and the establishment of a video survey. I do know that there is sort of a combined effort for the South Atlantic. I think what was recommended still greatly exceed what we're doing now. But in terms of sampling; because those also included sampling shelf break in deeper waters as well, so I am apt to confess I would have to go back and look at the recommended numbers and take a look at that. I think probably the best measure of that is to start to look at the CVs of the indices that we're generating. That is going to be the telltale sign of whether we're sampling enough.

DR. REICHERT: Can you elaborate a little bit on the Bacheler and Shertzer paper that you mentioned in one of the slides?

DR. KELLISON: I guess I forgot to mention it, but that was something that has happened recently. Marcel, I was thinking last night if I have forgotten to send that to you, I will. Nate Bacheler, who runs our SEFIS group, and Kyle Shertzer, who is an assessment scientist for our South Atlantic group, did some work to look at sort of the balance between using a mean kind of approach to reading individual frames; looking at the sort of tradeoffs between how many frames you read and the information gained from reading those frames; so what you put into it, the cost is personnel effort, the time that you spend reading; and then what you get out of it is information gain in terms of species richness and abundance information.

Without remembering specifics, they've found that these 41 frames that we're reading right now is a good tradeoff between effort expended and the amount of information gained. We could get additional information. We're definitely missing information by not reading more frames or by not reading the entire video.

But if you think of sort of maybe time spent on the X axis and information gained on the Y axis; that relationship probably increases linearly for a while and then begins to plateau. We're sort of close to the plateau area with those 41 frames. That was sort of a lucky thing we started. We had to start before we did this work, and we started with this approach thinking that it might be reasonable.

I haven't talked to a lot of people about this. It turns out this analyses suggests that our methods are a pretty good tradeoff in terms of effort versus information gain. Yes, that paper is in review right now. I guess I would have to ask those guys; but if people would be interested in seeing that, I could probably send it around.

DR. REICHERT: Do you know if the Gulf of Mexico is considering perhaps using the same methods you're doing or do you feel they're continuing –

DR. KELLISON: I think it is likely they are going to continue with the min-count approach. We spent a lot of time talking with their survey and assessment people. I mentioned that before; we spent a lot of time on the phone. We spent a lot of time analyzing each other's data. Again, I mentioned that I think both approaches have their pros and cons. A main problem is it is difficult for the Gulf of Mexico – for them to use the mean kind of approach like we're utilizing.

It would require them going back and reading years of videos. It would require a tremendous amount of personnel effort and therefore funds to do. Again, I mentioned we had included Rick Methot, our chief stock assessment scientist, on these discussions. It seemed like given that both approaches; one, they both seem to be pretty effective, but they both have distinct limitations to them.

It seemed like the best way forward was for each group to continue to go about using those distinct methodologies. I'll also note that we've compared the two, and they relatively track each other. Qualitatively they point in the same direction, stocks going up, then the index goes up; it goes down, the indices are going down. It looks like we'll probably continue to do things differently in the Gulf than in the South Atlantic for the video surveys.

DR. REICHERT: The reason I'm asking is because there is always these questions about consistency in methodology between regions in terms of when you start reviewing the assessment stuff.

DR. KELLISON: Right; we put a lot of thought before moving ahead with this mean count effort. We spent a lot of time talking with our assessment scientists on what would be best. Certainly, a huge consideration in that was that it would certainly be beneficial to have consistency in methods across our regions.

DR. BARBIERI: Sure, but in this case it looks like after you guys evaluated the methodologies, you came up with – since this program here in the South Atlantic is basically just starting; it made sense to then utilize the method that we thought would be the best going forward. Even though there isn't really that 100 percent consistency, it sounds like you are going in the right direction.

DR. KELLISON: We feel like we're using the best metric that we can.

MR. HARTIG: Yes, Todd, we had been talking earlier and you mentioned that during these cold water intrusions, that you don't get many fish in the traps, but how has that affected the video?

DR. KELLISON: Less so I think. It is hard for me to speak very specifically to that, but I talked a lot with Nate, our SEFIS, lead about it. Ben and I were talking earlier today that we're working with an oceanographer at NC State to try to be able to anticipate where these cold water intrusions occur along the shelf occur.

We may in the future adapt our sampling and try to stay away from that. That has some implications as well for sampling, so we may not do that. But going back to your original question, my feeling is, from talking with Nate and some of our other video readers, is that when we do get those cold water intrusions, we do see drop off in trap catches, but we still see a good number of fish on the video. I'm sure that fish move out of those cold waters to some extent, but to some extent there are fish that are there, but they are just I think not moving around much. They are not going to the traps but there are fish that are still there.

DR. BARBIERI: Todd, I have a very general question. I'm curious to hear about what is the plan for the future? It looks like you guys are putting a lot of effort and a lot of planning into place right now, and that is very encouraging. What is the prognosis, if you know, if continued

funding going into the future and potential expansion; are there any plans that you could share with us?

DR. KELLISON: I would like to say that we will expand. I certainly don't foresee that happening in the near future, but I am happy to say that relatively recently, in the last few months we've learned that the funding for SEFIS, which had been classified basically as a budget code when the federal budget comes through as temporary funding, that it has transitioned to having a "P" beside it, which stands for permanent funding, which does not mean permanent really. But it does mean that it is more stable I think than it had been. We do anticipate funding for SEFIS, and I would anticipate the funding for the MARMAP group. In fact, you guys have gotten back a little bit, I think, in recent years of what you lost.

DR. REICHERT: Yes, the last fiscal year we got half of what we lost in 2012, but I have no idea what the situation is going to be for actually the current fiscal year. We probably won't hear until a month from now.

DR. KELLISON: I can't speak towards expansion. I feel pretty confident that we will at least be able to maintain over the next number of years. Maybe this is just personally speaking, so stepping aside from a NOAA role; it is obvious that in many cases we have a very real or dire need for strong fishery-independent survey data. It is hard for me to imagine that – it seems like this is going to be an important funding source. It seems to me that to management this would seem to be an important funding source to maintain.

DR. DUVAL: I think certainly around the council table the increased need for fishery-independent data is something that we've discussed quite a bit and trying to find some creative approaches to expand the existing methodologies that are currently being used by SEFIS and MARMAP and looking towards trying to perhaps engage in a cooperative effort using industry platforms to provide coverage in some of those areas like the southern part of Florida and north of Cape Hatteras where you all might not have the resources to get there. But through a cooperative effort, we might be able to get some of that coverage that we really need for some of those species.

DR. KELLISON: That's a great point. If there is a future of flat funding, then that is definitely a way to build an increased capacity for fishery-independent surveying. I should note that over the past few years, every year we've had some cooperative research projects going. They are not necessarily fishery-independent survey work; but I know this year Marcel, his group cooperated on a longline proposal.

We'll continue to try to find ways to build our capacity in the South Atlantic. I would also note that it is appropriate that this slide is still up, because part of our ability is to fill in those gaps. Some of it is due to multibeam mapping, but a lot of that is driven by information that we've gotten from industry members.

One of the first people that helped us out is sitting over at the side of the room, Rusty Hudson over there. Thanks to you, Rusty, and many of your colleagues here who have been really, really helpful in working with us, understanding that we all want to get to a place where we're providing the best survey information available. That's been a great step forward. To your point, Michelle, we look forward to continuing to build those relationships.

DR. BARBIERI: Are there any other questions or comments for Todd? Todd, again, thank you so much. I think that this was a great overview, a great discussion. I appreciate you taking the time to come again and discuss and present this to the committee. We would like to stay connected with you, whatever we can do.

Of course, I'm offering the committee out of order, but I think that it is in our best interest to continue working very closely with you guys, MARMAP and SEFIS, or SRFS. We might invite you over from time to time just to give us some updates like this.

It is just nice to stay on top of it. This is such an important issue. I guess everybody realizes across the board; you know, fishery-independent sampling in the South Atlantic, this is the unifying issue that I guess everybody from any perspective is fully behind. Again, thank you.

DR. KELLISON: Again, thank you and we look forward to that increased communication.

MR. CARMICHAEL: I think it might be good if we could have a little discussion on the idea that Todd kind of put out there of having a workshop to look into these indices, because we all know there is a lot that has been riding on this.

There has been a lot of expectations built about this survey, particularly with its ability to really help us better understand a lot of these stocks, get the much needed fishery-independent information to deal with things like red snapper where the catch stream has largely gone away.

We thought given that there is expertise in other regions and this is a first-time survey, that the more we can do to frontload, as we say, development of those indices and give these guys at the lab some support and some additional eyes and to make sure that we've done a really good job of that and have good justification for the methods

Particularly, I kind of had this idea even before realizing they were looking at a slightly different metric than what has been used in the Gulf, we kind of know – we've been down this path before when one area does something a little different than another area and that can immediately be cause for concern and the red flags go up.

I just wonder if the committee thinks this is a good idea and something you would support recommending that the council maybe support and try to organize and convene as much as possible, at least help these guys out, and if there are some SSC members who would be interested in participating in that; it would be something we would probably want to do in, what, Todd, the next six months probably?

DR. KELLISON: Yes.

MR. CARMICHAEL: Yes, the next six months or so to get it going, because we want to have an index that is ready to rock and roll by – we have got to have it by August, by the data workshop.

DR. REICHERT: Yes, especially if staff at SEFIS and the assessment team is going to start working on developing these indices that is starting in December, I think we would want to have this type of exercise before they are along in the process.

DR. BARBIERI: Yes; I look around and I see a lot of people nodding their heads in agreement that having this workshop would be very beneficial. We would welcome more directed SSC participation in the workshops. If we have some internal expertise that could step up, not necessarily right now, but just be on notice that as John and Todd and Marcel continue organizing this workshop, that we're going to be reaching out to the SSC.

We would appreciate you taking the time to participate and provide that input at that time. Our next agenda item is to look at the ACCSP biological sampling target process. For your reference Attachment Numbers 14, 15 and 16, and I believe Mike Errigo is going to give us an introductory overview of the main discussion points. Then we'll proceed to our action items.

MR. CARMICHAEL: Mike has got a presentation on to pull up. The background on this is the council has been asking for information from the Science Center on biological samplings; you know, what are the targets and how many samples are being obtained? They got some information at the last council meeting, and I guess what was immediately apparent was looking at the targets which were coming out of the ACCSP biological operations group that sets sampling targets. A lot of you guys are familiar with that.

Some of those sampling targets were quite high, and some of the samples collected were relatively low and it came with a very low percentage of success. It was kind of something some council members grabbed hold of and said as a measure of performance this seems extremely poor.

A couple of issues, though, with how this is done and the things they are using is if you took a fish like snowy grouper and looked at the total catch – because we just had the assessment and I just did it as an exercise – the sampling target was 100 percent of the catch, like 2011. I think there are some issues there.

One of the things that came out of the council meeting was a plea to the state folks to go back to your agency and find out who is on this committee, and let's take a hard look at how these sampling targets are being derived. There may be a better way to get to some of these targets. One of the nagging issues I've had for a long time is how effective it is to have species-based sampling targets in a multi-species fishery.

We don't want a person passing up a gag because they think they're down there looking for a red grouper sample. I think the multi-species aspects of snapper grouper are a challenge for a lot of these kinds of things. We thought one way to get going on this and maybe give the SSC more of a role is to just get a sense of how these sample targets are established, what are the priorities, and where do these numbers come from. That is what Mike is going to go through. He's the council's representative on the ACCSP Committee now that does this work.

DR. ERRIGO: All right, I'm going to give you guys just a brief overview of how this process works or at least my understanding of it. I am not privy to all of the intricacies of how these samples are calculated. A lot of that is done at the Science Center. I'll give you an overview of everything that I have here; and any questions I will try to answer for you as best as I can. The first part of the process is that not every species is given a sampling target. It is based on a prioritization matrix. Species are prioritized based on a long list of factors.

The top 25 percent – so they've ranked them, the top 25 percent, those species have the ability to be recommended for funding. Those are also the ones that get the sampling targets assigned to them. Then priorities are given to projects covering multiple species, the top 25 percent highly recommended.

But ultimately the Coordinating Council makes the final decision on the funding, the Coordinating Council at ACCSP. The factors used in this prioritization matrix; each of the councils as well as Atlantic States Marine Fisheries Commission, each of the states and each of the branches of the National Marine Fisheries Service puts in their priorities.

Other factors are is the fishery managed or not; have there been significant changes in the landings or in management in the past two years; what is the adequacy of the sampling that has occurred in the past? Stock resilience; how resilient is the stock to overfishing or having an overfished status? How many sampling strata does this particular stock have?

What is the seasonality of the fishery; is it a year-round fishery; does it occur for two weekends, which is red snapper? These are just some of the factors, and I believe I have an example of what that matrix looks like.

DR. BARBIERI: Mike, do you mind if we interrupt and we ask questions as we go along since we have some extra time?

DR. ERRIGO: Yes, go ahead.

DR. BARBIERI: Going back to the previous slide, that prioritization; what are the timelines involved? Is this a three-year process, annual process, five years?

DR. ERRIGO: Right now this entire process, the prioritization, the setting of the sampling target, the whole nine yards; this entire process happens every two years. It used to be annually. It was decided that it was unnecessary to do this process every year; that the samples that were set were probably okay to stay for two years.

Of course, that decision was made before a lot of the whole ACL and ABC stuff went in and a lot of these management changes went into place; landings started going all over the place. There have been a lot of changes recently that have thrown this all out of whack. Also, ACCSP is currently revamping these matrices.

The prioritization matrix; we've looked at that. The bio-sampling matrix is being looked at and several other things, so there is still a lot going on. Right now the next time these will be looked at would be January of 2015. This is basically what it looks like. You have a species here on the left; albacore, American eel, blah, blah, blah.

There is a species on the left and then there is the priority, so there are the council priorities – they go from 0 through 5. They put those numbers in – the Atlantic States priorities, the states' priorities, the Fisheries Service and then each of the different criteria. Yes, there are different numbers associated with, okay significant change in landings; one, less than 25 percent; three, 25 to 75 percent, et cetera, et cetera. We go through the whole list of criteria. Then they add them

all up and you get a number. They are ranked based on that number on the right, and that is how you get your priority for each stock.

DR. REICHERT: Your rank is the different colors?

DR. ERRIGO: These are not ranked right now; they are in alphabetical order.

DR. REICHERT: No, but you said and then you end up with a rank, and that is the color?

DR. ERRIGO: Yes, they rank them numerically. The color refers to the percentile that they're in. Red is the upper 75th percentile, I think; green is the middle 50th or something like that.

DR. REICHERT: I understand, but that column is the ranking.

DR. ERRIGO: That column is the ranking, yes.

MR. CARMICHAEL: One of the places this matters is when they submit proposals for research. ACCSP has a pretty significant amount of money that is doled out to the states and other partners for research. If you're dealing with species that are considered a priority through this matrix, then that helps in the ranking. It is a qualitative thing there. If you do something in the top tier, you get more points than if you do something in a lesser tier. There is some importance to these rankings.

DR. BARBIERI: Mike, one quick question. The prioritization matrix for the list of species there will, of course, set the priorities for the different species strata of priorities. Do all the species there get sampled; meaning some have higher ranking than others and will have a higher priority in terms of investment. I'm thinking about if this prioritization changes every two years, how do we get a long enough time series of consistent data for the stocks?

DR. ERRIGO: If a species comes out not in the top 25 percent, that does not preclude it from being sampled. It just does not require it to be sampled. It does not require it to have sample targets.

DR. VAUGHAN: Yes, it has to do with funding from ACCSP. If it is not being funded –

DR. ERRIGO: ACCSP will not fund a species –

DR. VAUGHAN: It has nothing to do with it. I was on this committee and helped create those matrices back in 2000 and 1999. Unfortunately, my mind is still suffering from the creation of this priority matrix and the one for bycatch that they also did.

DR. BARBIERI: Very understandable.

DR. ERRIGO: Which I am also on.

DR. VAUGHAN: My condolences; I finally got off of it when I retired.

DR. DUVAL: There is going to be a revamping of this particular matrix that is underway, right?

DR. ERRIGO: Yes, there is a lot going on right now. There is actually a lot coming from the top. They are looking at a lot of this. We're doing some revamping. I don't know how much change will happen. I couldn't tell you how it is going to change. We've already pushed back – we were supposed to revisit it this year. But because of everything that has been going on, we've pushed it back another year, so we can continue to look at it. Right now the focus is on bycatch issues. The bycatch matrix is being heavily looked at now.

DR. DUVAL: The reason I ask is because I just note that each of the Atlantic Coast States, their scores are averaged so that it only is like one vote. But you have – meaning no offense intended to my National Marine Fisheries Service friends, but NMFS has three votes, the way I see it, one from HMS, one from the Northeast Region and one from the Southeast Region.

DR. VAUGHAN: No.

DR. ERRIGO: No, it works differently for each one.

DR. DUVAL: I'm just telling you what it looks like.

DR. ERRIGO: For NMFS you've got the northeast, the southeast and HMS. They take the one with the highest priority. For the states, they take the average; but if the state doesn't put in a priority, it doesn't count as a zero. It just isn't put in. You just take the average of the states that put in a priority.

DR. VAUGHAN: They have changed that then. It used to be a zero when we started; the idea being that we don't want any one group of states or region to dominate. Obviously, they've changed it.

DR. ERRIGO: Well, I might be wrong. It might just be that it is just a zero if you don't care.

DR. VAUGHAN: If all the states along the Atlantic care about it, then it is fully weighted; but if it is only one or three or four states that care about it and none of the other states – this is a coast-wide funding project, so you want to emphasize those things that are important throughout from Maine to Florida and not something that is just important – I hate to say it – in the southeast or just in New England.

That was the initial intent was to try to give more weight to things that are more broadly important. Again, as I say, I don't think this affects our sampling at all in the southeast, because we're not funded through ACCSP as far as I know. It is only to get funding from ACCSP to supplement your biological sampling.

MR. COLLIER: ACCSP has been used to sample the snapper grouper fishery. We did it in North Carolina for a little while. The one question I have is it gives a ranking whether a fishery is managed or not; there are pros and cons to that. I don't really know how you can give a value if it is not managed. It seems like that you need more information for that species potentially than if it is managed. Then you should have at least some historical information. That is just my comment on it.

DR. BARBIERI: Doug, to your previous point, I think that what Chip was mentioning is there are some specific short-term, let's call it, projects that get funded by ACCSP, as funding gets distributed to different states and different situations at different times where there is no continuous –

MR. COLLIER: Monitoring, okay.

DR. BARBIERI: Right.

MR. CARMICHAEL: There are a couple that are quite important to every assessment we do here in the southeast. One is an increase in the recreational headboat sampling that has been led through Bev down there in Florida, and discard information from the headboats have been very important and influential in assessments.

South Carolina gets money for sampling snapper grouper. North Carolina has gotten money for sampling snapper grouper. The Beaufort Lab itself has gotten money for reading the age samples that come in off the headboat program that the agency itself, NOAA Fisheries has gotten that money from ACCSP.

One of the reasons to get this on here is to let you guys know, especially those of you at the state agencies, this stuff is really having a background influence on a lot that we do. It seems like a lot of people aren't really aware of some of these ACCSP things that are floating around. Some of the state council members didn't know who from their agency in some cases was necessarily serving on these committees and that this work was being done by those individuals.

We're really trying within the South Atlantic Council here to elevate the stature of the ACCSP and make sure everyone is fully aware of all these different levels and hierarchies that is going in and how it is trickling into our data streams. It is an opportunity as well, because recently there was potentially more money on the table for new projects than what they received proposals for new projects when we reviewed them just a couple weeks ago. There are opportunities here to put in and get money for sampling of new species and filling in the holes.

DR. VAUGHAN: Good point, John.

DR. BARBIERI: Sorry for the interruptions, Mike, but it is just like some of these things; ; you know, you have the slide right there and then, boom!

DR. ERRIGO: Okay, I did explain it. I wrote it down so I wouldn't forget. At my first meeting I questioned why they averaged all the states if you have like red snapper; of course, they are not going to care about it, and then they told me, well, it is coastwide, blah, blah, all that. State index as far as average of all the Atlantic states, and then it is the maximum from each of the NMFS branches. A managed fishery gets higher priority.

Larger changes in landings or significant changes in management get a higher priority. If it has adequate sampling already, it gets a lower priority. If it is a very resilient stock, it gets a lower priority, so a stock that has a high productivity. If it has more sampling strata, it gets a higher priority because it requires more sampling effort. If it has a shorter fishing season, it gets a higher priority, because it is harder to catch than during the year.

Then they add everything together to get the total rank. The targets are broken down into several different strata. The first one is state or region, so you've got North Carolina, South Carolina, Georgia, northern Florida and southern Florida. They are also broken down by sector, commercial and recreational, by gear type. It could be like hook and line, longline, trawl; depending on what area you're in.

Stat area and then the quarter of the calendar year, so Quarter 1 is January, February, March; Quarter 2, April, May, June. Targets are submitted by both the Fisheries Service and the states. The targets are calculated based on the last full year of landings. A matrix that is completed in January of 2012, those landings most likely came from data from 2010, because that is probably the last full year of landings' data on file.

The states may be able to use some 2011 data, because their data may come in; the states that collect the landings' data and then send it to Fisheries Service, so they may have a jump on it and may be able to use some of the newer data to modify their sampling targets. Then this sampling target is also a spreadsheet. Each of these is filled out every other year.

Targets are simply carried over into the next year. I'll give you a look at what that looks like. It is also a big ugly spreadsheet. The first few columns are simply questions about like status of the fishery and most recent assessment and have nothing to do with the samples. Then you've got species – no, this is the priority matrix, sorry.

Well, anyways, it is just a spreadsheet that has columns. The species will be listed out several times, depending on how many substrata there are, how many times divided up by gear, statistical area, state or region, commercial or recreational, and then quarter of the year. It is all filled in by both the Fisheries Service and the states.

The states obviously fill in their appropriate sections; the Fisheries Service fills in all sections for all states and areas. Some issues came up at the last council meeting in September that many of the South Atlantic species seem to be either significantly under of significantly over their sampling targets; and also that these targets may not be appropriate for the level of landings in a given year. The lag in the landings; this two-year lag in landings may not be appropriate for some species.

For example, if you were going to create sampling targets for red snapper and the last full year of landings you have is from the year before the red snapper went into a moratorium and then you created bio-sampling targets, and then the fishery closed down, obviously, you will not be able to meet your sampling targets. That is an extreme example, but there are many other examples where ACLs went into place reducing landings and things like that where targets just could not be met.

DR. REICHERT: I either may have missed it or I'm jumping the gun, but where are those numbers coming from? You listed the priorities, but I'm not sure if I understand where the numbers are coming from.

DR. ERRIGO: I'll get to that; I'll let you know. I don't have the specific formula that the Science Center uses, but I do know that all targets are calculated based on a percentage of landings from a year. They say, okay, we want to get 5 percent or 10 percent of – they are either

based on percentage of landings; or if the information is available, stock assessment scientists will calculate here is how many samples are needed in order for us to run an assessment with appropriate CVs.

This is how many samples are required for us to appropriately sample this species so that we can run this assessment and sufficiently reduce the uncertainty so we know what is going on. That exists for a very small number of species. Other than that, targets are calculated simply based on a percentage of landings from the year that they have the last full year of landings.

They'll look back; so for 2012, you look back at 2010, here is your full year of landings. You look at each quarter. Here is what the landings are from that quarter. We want to try to get 5 percent of the landings sampled, 5 percent of those landings is this many fish; that is our bio-sampling target for that year in that strata or in that quarter.

They will do that and they will break that out by state and by statistical area. Well, this is it; this is what it looks like. You've got regions, so you will see here on the left northern Florida, southern Florida, Georgia, North Carolina, and South Carolina. This is for white grunt. The market category is here. It is not one of the categories it is broken down by; but a grade, is it whole, is it gutted, is it filleted; the gear is hook and line. Then for white grunt you've got commercial and recreational. You've got target species.

MR. CARMICHAEL: He will e-mail that to all of you if you want to look at it.

DR. ERRIGO: Here are the statistical areas where white grunt is caught. I believe these are the NMFS statistical areas, the sampling statistical areas. Then here is the number of lengths requested per quarter. Quarter 1, they want in northern Florida 455 commercial lengths and 30 recreational lengths.

In Quarter 2, they also want 30 recreational lengths and 128 commercial lengths for white grunt in northern Florida. They go down the list; you have Quarters 1, 2, 3 and 4; total lengths. Maximum individuals are the maximum number of individuals to sample per trip per boat that you stop. Then that is the maximum number of ages to be obtained per trip and the total number of ages requested within that year.

MR. CARMICHAEL: Bear in mind this is white grunt; you are talking about 7,000 and some lengths being requested and 7,000 otoliths.

DR. ERRIGO: Almost 7,000 otoliths to be collected; commercial and recreational, in all areas in one year. That is what the Science Center – this green line here, this is South Carolina. That is what they put in for commercial and recreational, 600 total otoliths; so around 7,000 otoliths for white grunt. Then you've got to be careful, because the rest of these people have been using wrong.

There are many people who have issues with some of the sampling sizes and things like that. That is how it works. These are calculated; they are sent to ACCSP, who puts them together in this spreadsheet. Then that becomes the sampling targets. That is pretty much how that works. The council had some issues with these samples. Bonnie Ponwith came to the council meeting

in September and gave a presentation on how we were doing with meeting our biological samples.

She basically put up a table that gave the targets for a given year and then how many actual samples were collected in a given year and what percentage of the targets was achieved. For some of them, we got way too many; for some of them, we got way under our targets. Another problem is – I have part of her slide there just to give you an idea of what it looks like. Another issue was these targets are set by species, but sampling is designed based on covering trips or areas.

They will put a sampler in a particular area and basically sample as many trips as you can and collect as many samples as possible. They don't say please collect this many white grunt, this many of this and this many of that. It is just please sample the trips as they come in for all species or all species on this list. Perhaps you don't have to sample this, this and this.

That is how the sampling works, but the targets are not really geared for that. Here is the table or a portion of the table that Bonnie put up in her presentation to the council in September. We have target and revised target. What they do is – so this is the Science Center target, the revised target. After consultation with the states, they revise their targets based on what the states had to say.

Then here is the percentage that was achieved in 2011 for the target and the revised target, and the percentage achieved in 2012 for the targets and the revised targets. The last column is the column that basically you would look at to see how we did in 2012; how did we do meeting our sampling targets?

You can see spiny lobster, we got 313 percent; why? Because they all come in a huge burst or they come in a given area. You put samplers down there. All they have to do is collect lengths. There are not otoliths or other hard parts that are collected, so they are easy to collect. Another big one, yellowtail snapper, 227 percent of our targets.

Some of them were not too bad; vermilion snapper, 71 percent; king mackerel, 65 percent. And then some of them were really poor; black grouper, we got 4 percent; red snapper, we got 3 percent. However, this illustrates some of the problems. The target for red snapper was 7,237. This was lengths. Red snapper, it was requested 7,237 lengths be collected in 2012.

I will talk about that in just a second, but our total landings weren't that high. There are some caveats with the previous slide; it was length sampling only. In some cases a high proportion of the otoliths were collected along with the lengths. In general, less otoliths are collected than lengths, so typically the percentages look worse for otoliths.

Actual number of the South Atlantic managed species for which targets were produced was 29. These species were selected arbitrarily to show the range of really high and really low. A lot of them fell in the middle, but she chose to show these to show the range of how we do. These targets were set in 2010 for 2011 and 2012.

In January 2010 they set these targets for 2011 and 2012. The data that came from that most likely would have come from 2008; maybe some data from 2009. If we take a closer look at red

snapper, the target was 7,237 commercial length – those were commercial lengths only. Commercial landings of 2008 were 44,906 fish. In 2011 we landed 156 fish; in 2012 we landed 1,532 fish.

The target as a percentage of the 2008 landings was 16 percent. We wanted to sample 15 and 16 percent of our landings, and we used the 2008 landings, let's say, to come up with our target. The number of actual samples collected in 2012 was 217 samples; so 2012 samples is a percentage of the 2012 landings, we actually sampled 14 percent of the landings. We actually came very close to the target percentage, which is the way we calculate our biological sampling target.

MR. CARMICHAEL: That's actually better than the zero percent that we saw on the initial tables, though, some information here.

DR. ERRIGO: Right; it said that we sampled 3 percent of our target; yes, of the targets set using data from 2008; but we sampled 14 percent of the landings in 2012, which 14 percent of the landings is pretty good considering that is right around how they set the target, how the target was calculated. That was all I had, so that illustrates some of the problems with this methodology or at least with how we're looking at our success rate.

DR. DUVAL: Mike, I just had a detail question. I know you mentioned this, but what in the sort of rainbow-colored spreadsheet that has the actual length per quarter and et cetera the targets; what does max individual stand for again? Is that a maximum number of individuals to measure per like length or something?

DR. ERRIGO: Per trip.

DR. DUVAL: Per trip, okay.

DR. BARBIERI: Thank you so much, Mike; this is very helpful, very informative. We appreciate you actually going through that much detail and pulling all the different disjointed pieces of information and consolidating this into one document and presentation for committee review and discussion.

In terms of actions that we have associated with this item, we are asked to review the sampling prioritization approach and comment, of course. If available, provide guidance and appropriate methods of allocating sampling effort for South Atlantic species. During Mike's presentation, there have been different comments about the effectiveness of this ACCSP-centered sampling prioritization and the funding schemes for achieving our targets for South Atlantic species.

It is something that perhaps would be good for the committee to comment on. Discuss species versus trip-based sample allocation as it pertains to multispecies fisheries, such as the snapper grouper complex – basically this is what John mentioned during his initial introduction. Then discuss length versus age sampling intensity with emphasis on allocation of effort when typical age/length key approaches are not appropriate. With that, we are going to open the floor for comments, suggestions and questions.

MR. HARTIG: I can't remember what table I got this out of, Mike, but it was a chart on the adequacy of the level of sampling. If you look at the 25 priority species that we have under there, they have it quantified – they use a zero for oversampled, 1 for adequate samples, 2 for almost adequate, 3 needs work, 4 inadequate, and 5 no sampling.

Out of our 25 species, we had one species that was adequate; two species that were almost adequate; three species that need work; 15 species that were inadequate; and five species had no sampling. In other words, 68 percent of the species that we manage had samples that were inadequate or no sampling occurred.

That is the kind of information that I think you guys need to look at in this discussion that you're going to have next. That part of it really jumped out at me, and it goes on. Mike mentioned the discussion we had at the council level. We're going to have that discussion again. We asked for all the species that are assessed, and we're going to get that at our next meeting.

This is something we're going to keep on, we're going to stay on and we're going to try. Now that science drives management and we no longer have anymore flexibility from the management side, we have to have the amount of science we need to manage and assess our stocks. The council is going to stay on this and make sure that we get this information, with your help, as we go through this process to try and make sure that we get an adequate number of samples to do our assessments. Thank you.

DR. BELCHER: Out of curiosities sake, who is responsible for doing all the biological selection of this stuff? I know we have – it is built into MRIP as far as lengths and things like that; but I know we've got TIP sampling, but even tip sampling isn't getting it. The reason I say that is just specifically for Georgia with red snapper we made a concerted effort to get out there and get those commercial landings this year.

Nobody told us to do it, nobody is paying us to do it, but we made the attempt to get out there and do it. Who is making the determinations? Is it the state people responsible? Is there a contractor doing it? To me that is kind of a blurred line is where does the responsibility fall? It is great that you have a number to shoot for; but if nobody knows who is supposed to be collecting the number, I don't see how you are getting it.

DR. BARBIERI: This is a very good point, Carolyn, because it would be good to get some clarification from Mike since he sits on one of several of those committees. I believe that this is really the ACCSP funded and coordinated sampling prioritization and implementation. There are other bio-stat sampling that comes into play through different programs and different funding sources.

Yes, we did the same thing and we sampled a very large proportion of the landings for red snapper last year and again this year, because it was easy enough being there were bottlenecks in those two weekends and collected that information that way, but that would not be reflected here.

I know that the ComFIN and the RecFIN programs that I think are administered through the Gulf States Marine Fisheries Commission provides some of the funding that spills – at least for Florida spills along the east coast of Florida and know our at-sea sampling program for headboats has been funded through the RecFIN program even though it is administered along the

east coast of Florida. Good point, who is coordinating all of this to make sure there is some intelligible plan for us to be able to tell how many and measure performance accordingly? I don't know the answer.

DR. ERRIGO: I think John is searching for it, but Bonnie, in her presentation, had a list. Recreationally, MRIP samplers collect biological samples. Commercially, there are several samplers; there are federal samplers. There are like four of them. Then there is like each state has several. There are quite a small number of samplers. I think South Carolina had one or two; North Carolina had a couple. She had zero listed for Georgia, although Doug said that is not exactly accurate.

DR. BELCHER: To the degree that it is TIP – and I mean, yes, snapper grouper obviously is not one of our larger fisheries, so that intercepts are relatively low relative to the effort, but as far as an independent.

DR. ERRIGO: Commercially, we're talking half a dozen people maybe; maybe five or six in Florida and then really nobody in Georgia, just occasionally. We've got one or two in South Carolina and one or two in North Carolina; two in South Carolina. There are six federal samplers; four in Florida and two in North Carolina. There are five state samplers from Florida. Florida has gotten nine on the South Atlantic coast. North Carolina has got seven, five state and two federal. South Carolina has two state samplers. Georgia doesn't have any dedicated.

DR. BELCHER: We do. I don't know that they're recognizing it, but we do. Our commercial group does go out and intercept with the TIP sampling, but it is a low number of trips so it ends up being a low percentage compared to everybody else, but there is a dedicated group of people that does it.

DR. ERRIGO: These are the number of commercial samplers in the South Atlantic, roughly. Georgia perhaps has a couple people which are not listed here.

DR. DUVAL: Mike, I think it is important to note that some of those state assets; like in North Carolina, that is not five FTEs. There are people who do commercial sampling as part of some of their duties. Chip can probably speak to it more, because we do have I think some MARFIN money to do some of the TIP sampling. It is not FTE, so I think that can be a little bit misleading.

MR. COLLIER: In addition to that, the samplers are commercial samplers. They might sample Atlantic croaker. They might not ever see any snapper grouper. It is for all fisheries in North Carolina, which we have considerable fisheries.

MR. CARMICHAEL: My understanding is it is a very complicated web. There are some federal people; there are some state people; there are state people under various grants. There are lots of different grant places where this can come in. There is recreational. There is commercial. There is MARFIN. There is IJFA. There is Cooperative Research.

There are a lot of places where all of these people come in. There are different relationships between the Science Center and each state that determines who operates where. There is history that goes back to all of this; and whether or not a federal sampler was in a particular state at

times had been an issue 10 to 15 years ago. I think the bottom line is, yes, it is really complicated and it is kind of hard to put a handle on just who does it.

In my experience it has always been kind of an issue about, well, it is a federal fishery. When this boat comes in with snapper grouper; do the state guys run down there and sample that – it is a council-managed fishery – or should there be a federal person who goes down and samples that snapper grouper boat when it comes in? It has been a point of contention for many years.

We get into situations like we are now as a result of that. I think the Science Center has tried to increase the number of people out there and get more samplers and work with the states and use funding or what have you to increase it. But as far as who is responsible, I think it depends on who you ask and when you ask them. The landings come into the state so there is state economic value to the landings coming to your dealer and selling those fish.

It is a federally managed fish, so is it only the feds priority and concern because the management happens to be by the council; or, does the state still have some obligation because it is their citizens, it is their businesses, it is their economic gain? I think you can make the argument from both directions that everyone has a vested interest in all of us working together.

MR. COLLIER: When you have a federally funded government grant program that you match with state funds, it works out pretty well. One of the issues that come up as far as the state sampling versus federal sampling is the state can't get the federal data, but the feds can get the state data. That is problematic and that is a source of contention.

DR. BARBIERI: Well, clearly, a challenge; and at this point, as I look at that list of action items, I'm not sure we are ready to tackle them at this point.

MR. CARMICHAEL: I can't argue with you on that point. I think one thing is, as Mike mentioned and I think someone else, maybe Michelle said; you know, these documents from ACCSP are undergoing some revisions. If there are some things that jump out, we can make comments here.

The other part is when you go back and find out who on your state serves on this committee, they are your voice so try to talk to them about it and let them know what the concerns and what the issues are. The other thing is the Science Center's presentation indicated – and I think Mike had copied that part about that ACCSP being very species centric; but the allocation of sampling effort by TIP, which is the primary federal thing, is more based on a trip because of the multispecies fisheries.

To me that has always been kind of a point of disjunction between how our fisheries operate and how the ACCSP target designs have been created. That is something to think about. The other issue is the realization we've come to over the years of SEDAR about lengths not really being informative about age and really getting away from the traditional fisheries length/age type sampling to more of this direct enumeration of age proportions.

I think that has a big influence on the sampling approach. Do we really need more length than ages? Do we need 30 ages from one trip or do we need a guy going down and getting a handful of fish at random from every boat that he can that probably went in a slightly different area? I

think those are the kinds of things we could have some discussion. Whether we can do it now, whether we talk about it more in the future or it is things that you discuss with your reps on this committee, I think all of those things are ideas to think about as we go through kind of a revamp of this thing and see what ACCSP is doing.

DR. ERRIGO: One idea that I had, I was going to bring it up at this committee level, although it has been pushed back for quite some time, I figured I would vet it here and see what you guys have to think about it. We're setting these biological sampling targets as actual numbers of fish to collect, basing it on a percentage of landings.

Can we perhaps set the targets as percentages in each quarter of the landings to be collected? Therefore, if you don't have any landings in Quarter 1, your target comes out to be zero. You didn't collect any fish, you're good to go; or if your landings are significantly lower in a particular year because of some management change and your targets will migrate, they will change with the condition of the fishery in a given year.

The way it is set up now you are using data from years ago. We're going to set these targets in 2014 based on probably 2012 or I'm going to set it in 2015 probably based on 2013 data. Those targets will stay in effect for the 2015 and 2016 fishing years. In 2016 you are trying to sample based on targets set with data from 2013. A lot happens; we all know that.

I've seen landings' streams. They are not nice flat lines, so getting around that is difficult. Doing this every year is quite the burden on some people. It takes a representative from each state who has to go to their – usually it is not one person who has the ability to come up with targets for every species.

They have to go through a bunch of people to collect these targets; not to mention someone at the Science Center has to calculate out targets for every one of the snapper grouper species on here. It is not easy, plus the prioritization matrix has to be done at the same time. Every two years is something that people settled on because they just needed the time.

People were not willing – they were simply writing down the targets from the previous year, because they just didn't have the time to go through and really look at it. Perhaps something like this you can put into place; it wouldn't have to be changed very often. Perhaps they just need to be looked at every so often or perhaps a minimum sample size. We need to get at least this many, but our target is this percentage of the landings. I don't know how you guys feel about that kind of approach to this problem.

DR. BARBIERI: I think that is a very good suggestion. Now, to Carolyn's point earlier, I really would like to have at some point – no major urgency, but I really would like to have an overview of the different programs. Right now we're sort of like a disjunct collection of programs. I don't have a very good understanding of how well coordinated they are and what they are producing.

Not for us to impose any protocols on the Science Center or ACCSP, but really try to contribute by making some suggestions and recommendations. I would like to have that overview. I don't really understand all the different pieces that come in as far as this bio-stat sampling is concerned. This would be a recommendation that I would like to make myself.

DR. BELCHER: Yes, I would agree with that because the other thing that you run into – and I know just from having discussions – I haven't done this first hand – but getting length measures and especially otoliths; you are approaching a fisherman who is voluntarily willing to participate in MRIP; he doesn't have to provide you the fish for measurement.

We can't make them provide you the fish for measurement nor can you make them give up their fish for the sake of an otolith. There is that embedded in it. The commercial, we run into the same thing, because if there is a fish carcass that comes and if the best way to sell it is whole, they are not going to let you whack into the head to take an otolith out, because then it ruins the market value of that particular fish.

We've been down that road, because you end up having to buy your samples from the commercial folks and we don't have the money to do that. There is a lot more involved in it than just the idea that you are going to a fishery and collecting that information. It is coming at a cost in some situations, but I don't think people realize that.

DR. REICHERT: I think if we are getting that overview, that may be important information for us to get also in terms of whoever we are surveying, what is the obligation of that particular individual to participate and whether that has provided issues in the past. Another thing, which may be somewhat unrelated, Mike, and you may be able to answer that; have there been any discussions about getting away from following target rather than another approach would be – and I think that is used for TIP – is just taking a random sample of what is encountered. Maybe I misunderstand how all of this is approached.

DR. ERRIGO: I'm relatively new to the process. Although I've been on the committee for a while, they don't meet very often. I'm wondering how they use the samples themselves. They may use that to help distribute money. Like this fishery, their sampling target is 50,000 fish. Therefore, they're applying for grant money to help with their sampling. They require more money than this fishery, which only requires the collection of 2,000 fish. I don't know exactly how it works.

DR. REICHERT: Again, I think that would probably be useful information, if that is available, to include in that overview.

DR. DUVAL: In trying to figure out how to provide input on modification of sampling targets, I think the interest in this around the council table is we've had a couple of assessments where – I'm thinking of maybe snowy grouper prior to North Carolina getting a port sampler in 2006 in the Manteo area; and blueline tilefish as well. But, in terms of the number of trips that are available for sampling, I think the assessment need needs to play into the recommendation that you all make. That would just be the only point I would make.

MR. CARMICHAEL: I noticed when I was pulling up that matrix, there was something in there that said it was the biological sampling program inventory at ACCSP. Now, this is because the ACCSP currently doesn't have biological data in their data base. They are trying to get biological data and include it in their data base.

You can imagine that is a heck of a lot more challenging than even just getting the fisheries data because of the wide variety of programs and variables and lack of consistency, but it is

something they've been working on. I pulled that up and just looked at Georgia as an example, and it lists five different programs in Georgia that collect data. It gives the programs so here is the cooperative statistics. It tells you to contact is Julie Califf.

Fisheries are penaeid shrimp, blue crab, grouper snapper, et cetera, so multispecies, it is commercial, it is since 1972 through current. They collect weights; it doesn't say they collect lengths. It tells you if they collect ages, the type of ages they collect and those various other things on it.

This has been ACCSP's effort to get out to all of their state partners and find out what the heck are you collecting. It doesn't break it down in terms of maybe the different programs and funding sources, but I think it is probably a good start. I'll share this with everybody to show you at least what is out there. I think if nothing else, it will be an eye opener to the complexity of information and the various sources that are out there for all these different fisheries.

MR. HARTIG: I think what I would like to see out of the SSC is kind of start from square one, to be honest with you. I would go back and look at the assessments that you are comfortable with that you thought you had adequate data for. I think black sea bass stands out as one that has and probably vermilion as one that has.

Then look at those sampling and how and where they were collected; and then relatively for the other species come up with some kind of numbers that you think would be adequate for the other numbers as well. I think to try and work through what we're looking at here would be counterproductive to what you could come up with, and maybe we meet somewhere in the middle somehow. That is what I kind of would like to see.

DR. BARBIERI: Right, Ben, and that sounds good. I think we can get there. I think at least my personal interest in having that overview is for us not to restate the obvious or ask for something when there is a program out there already in existence I am just not aware of. I am going to go back and take John's recommendation.

I'm going to go back and sit down with staff at FWRI and have an overview. I know that we have staff that has been involved in ACCSP and the sampling programs and all that. Honestly, if I look at like a five-year time horizon, the feedback that I've been getting from staff consistently – and, of course, that is exclusively for Florida – is that ACCSP has not been providing really any consistent or significant funding.

To tell the truth, we have seen the RFPs that come out of ACCSP. Over the last three years or so we have not submitted a proposal because those proposals don't get prioritized for funding. The explanation that I've heard about this is that there was an effort that had been longer term up in New England, spilling into the Mid-Atlantic. The idea was to complete that, which is sensible and I think it might be reasonable but it doesn't address our needs down here.

Our staff started dedicating time towards other activities and trying to find our own ways to fund some of the bio-stat sampling. This was not something that we felt was a reliable source of funding or guidance, really, on how to coordinate all the different types of bio-statistical sampling. We might get that overview and get your point and not really go anywhere. Doug mentioned before – Doug served in the very beginning the Biological Operations Committee –

DR. VAUGHAN: Up until about two or three years ago.

DR. BARBIERI: – that the Southeast U.S. was not a priority for them.

DR. VAUGHAN: Things that could cross regional boundaries, like the Mid-Atlantic and New England did a lot better. We could do okay in black sea bass, because they had black sea bass up there and they also had tilefish up there. It was really difficult getting something that was strictly southeast to score very high on that priority matrix.

DR. BARBIERI: You know, Ben, right now I don't even really understand the process enough to say okay if we have this problem or maybe it is not a problem from an institutional or organization perspective as the ACCSP; but if ACCSP is not really the main guiding body providing the funding and the guidance, who is?

I guess that was Carolyn's question. How is this structured so we can actually even think about helping? Right now to me this looks fairly chaotic, to be honest. We would like to contribute. This is not to negatively criticize. If we have something to contribute that we can bring forth to help them achieve what they're looking for so our council has more assessments, well, we would like to go that way.

MR. COLLIER: I would like to reiterate your point, Luiz. ACCSP wasn't felt as a great source of funding in North Carolina either. One, you can only get the grant for one year at a time. Then there have been problems in the past when you do get the grant, you don't get the funds on time so you're waiting to start the program. Then you're going to have somebody with a period of time when you have to lay them off just because you don't have the funding in-house. It is pretty difficult to deal with when you're dealing with a year-to-year funding like that.

MR. CARMICHAEL: That's right; a lot of the funding that ACCSP had – the intent behind that was program ramp up and implementation. I've been on the Operations Committee for a number of years, and there are a lot of issues about funding that went away from that and became more maintenance.

There are arguments about what is more important, a new program or preventing backsliding of important information. If a state says if we don't' get the funding we're not going to collect the data and you are not going to have these catch records on lobster, well, that is a big topic to a lot of people and they are going to make sure that kind of stuff gets happened.

One of the things they did a couple of years ago was to start allocating and earmarking essentially a portion of the grant money to go to new programs. Again, that is never intended to be like long-term maintenance. It is one of the concerns. It was always about it is a limited amount of funding; it is not nearly enough funding to do all the sampling that is needed to manage all the commercial reporting programs and recreational reporting programs, which really began to be the core.

It was really just supposed to be start-up seed money, get the research done and methods. A lot more of it has been going to that lately. I think it is really hard to find out just who is the responsible body for all of this stuff, and maybe that is somewhere that we can start. I think we remember ACCSP is really set up as coordination and oversight.

They don't do any of the sampling. They put the targets out there, and they don't know if people are going to use them. They recognize the problem and now we're trying to revamp the target program. I think if we just, as Ben said, sort of take that under advisement, think about what the best way is to do it, and maybe it is not some of this traditional stuff that we've been doing for 15 years.

Maybe we have a fresh look at how we do sampling targets for snapper grouper and South Atlantic species in general. I think we don't really know what the role of the SSC really has in this kind of thing. It is just sort of hard to say. We're end users of the data and we have to deal with the problems when the sampling is inadequate; but where is our influence as the SSC to fixing that up front? I think the Science Center has a lot of samplers; they run the TIP program.

Ultimately they obviously have a big role in the sampling targets and deriving them. Maybe we need to hear from them at some point directly and get like Dave Gloekner in here, who knows that thing inside and out, and maybe help us out and see if there is any way that this group can help him out.

DR. BARBIERI: Right; and that is the way that I would see the role of the SSC is an advisory capacity. I mean, we have been asked by our council to really evaluate this issue. It is a data and assessment relevant issue. We can provide some recommendations and some suggestions in the spirit of contributing to the process, because right now it is difficult to even understand what is going on.

DR. ERRIGO: I just wanted to make a couple of points. One is I just want to reiterate that ACCSP does not set the targets; they don't make them. They just compile them and put them out there for others to use. That is just one thing that is logistical. The second one is in my conversation with people at ACCSP, they are very willing and open to discussion.

If the South Atlantic is having a big problem with how things are going, they are willing to have discussions about what can be done maybe to help fix some of these issues. They are even willing to facilitate meetings and whatnot or whatever. As a user group of their services, they want to make sure that they work for us. They did say that we can work within this framework and try to fix some of these issues. They would be willing to do that.

DR. BARBIERI: Right; but right now our Science Center is using this prioritization matrix as a way to implement the sampling; is that it or no?

DR. ERRIGO: I don't know how much the Science Center uses the targets set to influence how they do their sampling. I don't know how Bonnie and her people – the sampling seems to be done by a great majority of different people. I actually don't know how this influences any of it. I'm not exactly sure how that works.

The prioritization, now that is all done by collecting information from the whole region. ACCSP calculates out the prioritization and then that is used when they're looking at proposals for project funding and stuff like that. The prioritization matrix is used for funding purposes; ACCSP uses that. When it comes to using the number of sampling targets and whatnot to try to manipulate your sampling protocols to get your sampling targets; I don't know if they use that or not. I'm guessing that that would be difficult. If you seriously undersampled one species and

oversampled another and you change the way you sample; you don't know what is going to happen in a multispecies fishery.

DR. VAUGHAN: Because of the constraints that you very well presented, I think they are well aware of some of the issues that cause those sampling targets to be missed. However, staff in Miami that are on the committee that have at least up to three or four years ago, when I was still on it, were the ones that provided and generated those sample sizes, because I worked with a couple of guys there in coming up with them. I wish I could remember what the actual calculation that was done to relate landings to sample size, but there was some such relationship that was used.

MR. COLLIER: I do believe Jennifer Potts would kill some of us if we submitted 7,000 or 6,000 white grunt otoliths to her. It is just impossible to do. Vermilion snapper a couple years ago was an instance of that where they had to sample the otoliths. Yes, they had to subsample that because they had too many.

That gets to interpretation and several different things. It is just not fun for them to have to do to pick which otoliths to sample. I believe there is new research out there indicating how many number of ages you need as opposed to lengths. We could go based on that and provide some of the information for that.

DR. BELCHER: I do think it is going to get down to having a group of folks get together to determine this, because it really is kind of scary to know that there is an expectation of numbers to be met, but nobody knows who is responsible for making those numbers; not to mention the funding that is supporting that.

The states are willing to ante up when they can; but if this becomes something that the states are going to have to do, we can't do it without additional funding. As it is, we're majority federally funded now to do a lot of our coastal work. The state is not going to ante up for us to do federal data collection. It is going to have to come from an outside source.

Everybody is on that soapbox, too. You look at your cooperative statistics program; we've been level funded for 11 years. Yet fringe has gone up, personnel rates; you can't freeze them but for so long. We're butting the ceiling right now and don't know what's going to happen in another year or two. Realistically, I really do think it needs to have a big come-together to figure out how they want to get this done.

DR. BARBIERI: Perhaps one way forward would be for us to try and get that overview or some description of what system do we have in place now. I think that was a good suggestion you made also would be for us to request the Science Center to come and give us a presentation that would explain.

I don't know, it might be Steve Turner or somebody at a higher level who can oversees really the entire fisheries-dependent data collection program for the Center, and can say, okay, this is basically how we make those decisions.

I know that they have their assessment folk right there. All of this might be well connected, but we don't know to what extent. I think that overview might be informative to the committee.

Ideally we would proceed I think to accomplish what Ben has requested; that we try to look at the assessment schedule that we are refining; the proposal that John Carmichael put forth is in the process of being refined, that we look at that as our work plan and we say, okay, how many are we going to need for this and this and this coming from so many fisheries, and what is the schedule that they come in, so we get all of that sort of lined up?

Our main concern right now is to have well-informed assessments that have age composition, size compositions, and all the biological information that is reflective of what is going on out there. Are there any other suggestions or comments from the committee that we could add to that regarding ways forward?

MR. CARMICHAEL: Is there any interest in trying to come up with some sort of proposal of this is how you think snapper grouper fisheries should be sampled?

DR. BARBIERI: I think that is a possible discussion. I just don't know if we can do it right here.

MR. CARMICHAEL: I guess I'm trying to see what the long-term sort of product of this might be; is that where this would be heading?

DR. BARBIERI: Yes, it would go that way. I think basically that is part of what Ben and the council have been asking for. But, until we understand and we look in front of us and say, okay, what system do we have in place right now; how is that system coordinated; how does the Science Center actually utilize that system to operate now? After we have that overview, I think it will be easier for us to identify more specific technical recommendations of that nature.

DR. DUVAL: I don't disagree with that. I think it is going to be difficult for you all to make any meaningful recommendations right now until you understand the universe that you're working with. I think the council has just started to poke around at this and get a sense of what some of the issues are with the current biological sampling targets and how they're being set.

If those targets are not appropriate due to regulation or some of them are overkill that is going to drown the staff that is doing the work of reading otoliths, et cetera, then let's understand that before making some other recommendations. I think it is something we would like to get to sooner rather than later. I don't know if you all can have more discussion on this at your April meeting, if there might be opportunity between now and then to probably have some conversations with folks at the Science Center.

Clearly, their input is going to be critical both in terms of, well, here is physically what we can do in terms of processing samples. From the assessment standpoint, here is the minimum that we need to actually make something statistically significant and to feed the assessment model, so to speak.

Then I think the complexities of understanding who is responsible for what, getting to some of Carolyn's questions, some of the funding that is received, cooperative funding that may be received by states; what percentage of a person does that amount for? As Chip pointed out, in some states you're going to have species that the person who is doing some of the cooperative sampling for federally managed species is also doing a lot of sampling for state-managed species

as well. I think there are a lot of parts there that you need a little bit more information on, but we're interested in what you have to say.

DR. BARBIERI: Absolutely, and I think that we got that message loud and clear. The idea would be for us, as we prepare our report to you for December, is to present some ideas of ways forward that you can evaluate. Then you can help us work with the Center in scheduling a presentation for our April meeting and preparation of whatever background documents we would have to review for the April meeting.

Hopefully out of the April meeting, we'll be ready to come up with a series of more specific recommendations or design more specific steps for us that we could put in front of you in June of next year. But, yes, we see the urgency and the seriousness of the issue. We are going to try to do this sooner than later; I agree completely.

Are there any other questions or comments? I think we are very close to adjourning for the day. Our overview document provides us an opportunity to review our consensus statements at the end of the day. Before we do that as a little bit of a break, we'll stretch our legs that way and we'll come back and we'll see if we can review some of those things quickly and then adjourn for the day.

(Whereupon, a recess was taken.)

DR. BARBIERI: As you can see there, the documents listed for review of this topic, we really have none. This is because the mutton snapper assessment is an update assessment. We were supposed to be reviewing it at this meeting. That assessment completion has been delayed. There have been some issues related to the MRIP time series in that conversion of MRFSS to MRIP.

We've been working with the Center on using a number of those ratios and trying to estimate what the long-term time series is for the recreational landings; but there were some inconsistencies that we identified between charter, for-hire, headboat – no, that is in the charter for-hire – just private recreational and the charter for-hire and some numbers that we felt were not really matching properly as they should.

That sort of raised a red flag and prompted us to revisit with the Center and go and try and review some of the methods that are being used for that conversion. Due to that, we decided that it would be better to just wait and have this completed for our April meeting.

We don't see an urgent council-related need to see this assessment immediately; and we felt that the best choice here would be for us to choose to look at this issue, get it resolved and then bring the assessment for your review in April.

DR. CROSSON: Question for council staff; how does that impact Regulatory Amendment 20 and the timing for Amendment 20? Is the council going to be trying to approve that next June?

MS. BROUWER: That is going to depend obviously on when the assessment is ready, so the council will just have to adjust. Right now we're just waiting.

DR. BARBIERI: Any other questions regarding the mutton snapper assessment update? If not, one of the other issues that we would like to discuss is another assessment that is being conducted by Florida. That is a benchmark assessment for hogfish. During the evaluation of all the biological information and all the research and data available on hogfish, we looked at some of the most recent information on the genetic structure; the population structure of hogfish.

We've been able to identify fairly conclusively that there are three distinct populations. One would be southeast Florida, part of the southeastern U.S., primarily Florida waters, down to the Keys. There is the west coast of Florida that only goes up to some level in the Big Bend. It doesn't even hit the Florida Panhandle. Then there is a disjunct population up in North Carolina.

The molecular genetics methods that have been used actually are very robust. Our geneticist has told us that any minor level of contemporaneous exchange or proper use or true biological connection between those components would have attenuated that signal to the point where we will not be able to detect the differences as well as we do.

As you know from some of those other population structure studies, in most cases the minimal amount of connectivity is enough to really not separate them as two separate stocks. In this case the fact that it is so clearly separated suggests that it had been isolated for quite a while and that they actually don't exchange as much.

Based on that, we had to kind of rethink how to go forward; and the idea would be for us to then conduct two separate assessment models; one for the west coast of Florida, one for the east coast of Florida, and then basically decide what to do about North Carolina. There is no index that we know of at this point.

The landings are very small and we have very fragmentary biological information. We could try and generate a catch-level recommendation for up there that would be based on some non-quantitative assessment methods, some landings-based. That is to be investigated as we go forward.

But as far as the actual assessment, we will conduct two for the two disjunct portions of the population. Dr. Neer will be joining our lead analyst in a workshop that is being held. It is a one-day workshop. We've had one-day workshops here. It is a one day workshop to basically present the data to stakeholders and other interested parties there. It will be in the Florida Keys, to be held November 20th in Marathon.

If there is anybody interested in participating, we can forward more specific information. This is very informal. It is primarily for us to sit down with industry representatives and stakeholders, present what we have, and see, okay, is there anything here that looks out of the ordinary; I mean, look at the landings' time series, look at all this other information that we have in terms of indices and what have you and then collect some information from them and exchange some of that information.

The idea would be that we would conduct – given this small distributional range of hogfish, that we would conduct this assessment internally. We are coordinating with SEDAR, and we will bring that to you some time in the spring. Actually, no, the assessment is going to be completed in the spring, but we get to see it in October; that is correct.

Basically, I just wanted to give you an overview of where we are with this. We have neglected – and I actually have to take the blame for this – not really providing you with a set of terms of reference, so you could review some of the terms of reference that we're going to be following to conduct the assessment. I've been talking to Wade and we're going to develop something very similar to the standard SEDAR terms of reference and bring that to you at some point.

OFF MICROPHONE: Differing from the ones that are already approved and on the website that you sent me a month ago?

DR. BARBIERI: No; I have not been on top of this. I've been asking Wade to handle it and apparently he is doing a great job. Wade is fabulous.

MR. CARMICHAEL: You've done so much, you don't even know sometimes.

DR. BARBIERI: I know; so it is done. That is a phenomenal efficiency right here. Anyway, that is the thing; you know, to inform you that we found a biological reason for not conducting a single assessment model and to give you the opportunity to comment on this as you see appropriate; and also to inform you of that separate disjunct population up in North Carolina. Apparently there is a lot of disjunct –

DR. DUVAL: We're all disjunct in North Carolina.

DR. BARBIERI: A population up in North Carolina that doesn't seem to fit –

MR. COLLIER: Don't look at me.

DR. BARBIERI: – the pattern. We're going to have to make some calls in terms of catch-level recommendations going forward, because we're not going to integrate data from that small portion of the population into the assessment.

MR. COLLIER: Seeing that we've given you aging samples, you are going to age those prior to giving the otoliths back, right? That would be great.

DR. BARBIERI: Yes; actually I think they are aged already.

MR. COLLIER: Excellent.

DR. REICHERT: It is my understanding there may be a few more coming.

DR. BARBIERI: Right; which is all wonderful, and this is part of this process. It is not as well phrased and well organized as some of Julia's recent e-mails about SEDAR 41 asking people to come forward with data. It is a little more south of the border sort of approach to requesting that, but you get the message. Those are two items that were discussion items that had to do with SEDAR that I forgot to bring up earlier.

DR. REICHERT: That may not be for this assessment, but I think we see them regularly in the videos. We don't catch them in the traps, but we do see them in the videos; so that for the future may be another source of abundance data.

DR. BARBIERI: Yes; and this is one of the benefits of this video survey and your review that Todd gave us earlier developing better fishery-independent information going forward. Right now it is not really available for the assessments, so going to the future that might provide a critical improvement.

Are there any other questions or comments regarding mutton snapper and hogfish? If not, I think what we have left is basically scan through our set of recommendations. Mike, I would like to hear from you whether you feel if you're comfortable there that you have captured what the committee –

DR. ERRIGO: Well, I think so if you want to run through very quickly. I think I got everything down that you guys were talking about. First was the SEDAR update. This is the terms of reference for SEDAR 41. The discussion was to meld together both of the versions of the terms of reference; the one that was presented from the Science Center and the original terms of reference.

That included the evaluation of the robustness and adequacy of the methods and all that; as well as strengths and weaknesses of the approaches, which was the new language; but, also, as Steve suggested, add in additional language incorporating the new NS-2 Guidelines, incorporating the decision of best available science, which is placed now into the peer review process; and incorporate those into the terms of reference.

Then you guys accepted their terms of reference for the gag update. Long-term assessment scheduling, you guys felt that the five-year approach was approaching the medium-term projections, which are a bit long for age-structured assessment projections. You felt that four years was a more appropriate time length or perhaps differing timeframes depending on the life history of the species.

Also to take into consideration management changes; that perhaps you need to leave an appropriate amount of time after a large change goes into place in order for that to carry through perhaps three or more years for the fishery to settle in before an assessment is conducted; and that the review workshop and the SSC should be the ones recommending what type of assessment should be performed for the next analysis of any particular stock that is being looked at.

There was discussion of theses choke species, those species that wind up closing areas or they are data poor. Perhaps you are unable to use conventional methods to assess them; to be added to the list of the priority species that were being discussed in terms of what species to put on this long-term planning of assessments.

Then perhaps performing different types of analyses on these species and not full-blown SEDAR assessments that wouldn't take up a full SEDAR slot so that you can do several of them, perhaps in a given year where either you would use a SEDAR slot, but be able to do multiple of these species at once.

You also suggested convening a workshop talking about all this scheduling issues, perhaps more data-poor methods to address some of these other species. Species groupings was another topic that was brought up for this workshop. These other species of special importance or choke

species such as Warsaw, speckled hind, dolphin or shrimp were some suggestions; and assessment efficiency being right now one SEDAR slot is filled with either a benchmark, a standard or an update and that's it; so perhaps a way to increase efficiency.

DR. REICHERT: Did or didn't we discuss the timing of the workshop like maybe prior to the next SSC meeting?

DR. ERRIGO: John may have mentioned that; I don't know.

DR. BARBIERI: It is recommended to be – I'm asking – to be done before April, that workshop?

DR. REICHERT: Yes, so prior to the next SSC meeting, so that would be a separate workshop.

DR. BARBIERI: Well, now that I recall, that might be prior to or right after – I guess prior to would be better, but that we schedule this kind of like we did for the ORCS workshop.

DR. REICHERT: Exactly; that is why I'm asking.

OFF MICROPHONE: Like the day before.

DR. BARBIERI: Yes, good point; that the SSC meeting starts on a Tuesday, but we would get this done on a Monday, for example.

DR. ERRIGO: All right; and then there was a brief discussion about the shrimp data procedures workshop; that there would be a steering committee put together to help with shrimp data issues. I guess I'll say volunteers were Carolyn, Chip, Marcel and Luiz, one person on the SSC from each of the four states for shrimp.

Then people volunteered for SEDAR 41. Luiz, you volunteered for the Assessment Workshop and to be the Review Workshop Chair; Jim Berkson for the Review Workshop; Doug Vaughan for the Assessment Workshop; and both Marcel and Chip at the Data Workshop.

DR. BARBIERI: Just to remind folks that we still have open slots for I guess particularly the Assessment Workshop. If you're interested, let us know before the end of the meeting. Review Workshop; that was Churchill Grimes for RW.

DR. JIAO: When was the Review Workshop again; when will be the Review Workshop?

OFF MICROPHONE: June of 2014.

DR. JIAO: Okay, I would like to attend it.

DR. ERRIGO: The next topic was the topic about the probabilistic approach for assessment recommendations and the MSST alternative. The take-home message, when we were discussing deterministic versus probabilistic approaches to stock determination, was that at least here in the South Atlantic where we don't really use a Bayesian models, it may not be appropriate to use the probabilistic MCB analysis to make stock status determination.

The base run is more appropriate for that. However, it is appropriate to use the MCB analysis for catch-level recommendations, so that the uncertainty is incorporated into those projections. Basically, there is a distinction where the base run and the MCB analysis are basically two different models.

The base run is the appropriate model for status determination; the MCB run is the appropriate model for catch level recommendations. Also part of the discussion that the base run is put together using expert judgment as the most likely scenario; therefore, it carries more weight than most of the recombined runs of an MCB analysis, especially the way that it is done here in the South Atlantic. We don't put the bounds.

There are infeasible combinations of natural mortality and steepness and certain other likelihoods and things like that that can occur within the MCB analysis the way it is performed here in the South Atlantic. I say in current models, since they're not fully Bayesian in nature, it is not really appropriate to use this type of approach, this MCB approach for status determination here in the South Atlantic.

However, that doesn't preclude it from being used if we evolve to a more Bayesian style modeling approach here. As for minimum stock size threshold, the discussion was that all the current possibilities that we have seem sensible. However, we don't really know what the long-term performance is of each of the alternatives that we have.

It was recommended that their performance be evaluated by the Science Center, but that the SSC acknowledges that the 75 percent of SSBmsy approach is an acceptable choice for minimum stock size threshold should the council feel that that is an alternative that they want to go with. That was all I had for that one.

Spanish mackerel projections; first off, the SSC accepted the revised Spanish mackerel projections as they were presented from the Science Center. There was a lot of discussion. The council had asked about the appropriateness of using a more stable catch-level recommendation; i.e. using an MSY-based catch-level recommendation\, as opposed to using a P-star based or some other projection based so that they could have stable catch levels over time.

Steve noted that according to NS-1 Guidelines there does seem to be a buffer between the projections at Fmsy and the MSY from the base run; therefore, those recommendations do meet the NS-1 Guidelines and are a viable option. There was a lot of discussion about justification for doing this.

It was talked about Spanish mackerel being significantly above its MSY levels or level of biomass more than twice as high as the SSBmsy. There are also some concerns that the projections were overly pessimistic due to certain things like dome-shaped selectivity saying that there is a certain portion of the population that is not available to the fishery, although in reality fishing practices could be modified to harvest these fish.

Also, Ben Hartig noted that there seems to be some recruitment depensation since we're significantly above the SSBmsy, which also could be causing the projections to come out pessimistic. That is another reason for using this stable MSY level as opposed to following the projections.

DR. JIAO: May I add a quick comment? I know this is not discussion for this. Our depensation depends on the reality that there are fishes there we are not catching and stuff like that; but because the model used the Beverton-Holt recruitment in the projection, it shouldn't be a problem for our depensation. I think that can be a real biological hypotheses.

It may really happen in the reality; but it is not in the simulation model. That is why I suggest we don't put it there, because really it is the simulation that has indicated that the projected recruitment and the catch will be lower over time, somehow like that.

DR. ERRIGO: All right; that was just a misunderstanding on my part. There was a discussion of there being two choices of how the council may want to choose to manage the fishery. One was to follow the projections and chase the productivity, meaning do what we've been doing, and to have the ABC change over time; or choose a stable long-term yield which would remain regardless of the productivity until the next assessment was done.

Even if productivity is very high, you would continue to use the same stable yield. The SSC recommended setting the OFL at the projected yield at the deterministic Fmsy for 2014 to 2016, which came out of Table 3 of the document that was in the briefing book; and that the ABC be set at the long-term equilibrium MSY value estimated in the base run, which was 6.063 million pounds of landed fish, as per the request of the council.

DR. BUCKEL: Maybe that "as requested by the council", maybe take that out since the council had actually asked for the OFL to be the 6.063, and we decided the ABC is set at that value and not OFL.

DR. ERRIGO: Then there was more discussion about justification; that Spanish mackerel is well above its spawning stock biomass at MSY, well below Fmsy and historically the –

DR. REICHERT: Yes; historically seemed to be at a level lower than those recommended and not higher?

OFF MICROPHONE: Not the population.

DR. REICHERT: No, Spanish mackerel has been harvested at a level lower than those recommended, correct?

OFF MICROPHONE: No, historically they have been – go ahead.

DR. ERRIGO: This sentence is not – I think I deleted something and something doesn't make sense.

DR. REICHERT: Sorry, two points below that.

(Remarks made off the record and could not be transcribed)

DR. ERRIGO: He mentioned that '91 and '93 was higher than the 6.063 million landed pounds. Then I mentioned that those happened before the net ban in Florida.

(More remarks made off the record and could not be transcribed)

DR. ERRIGO: What it was is the ACL was set at around 7 million pounds so it was set higher. The assessment showed that overfishing wasn't occurring and that the stock wasn't overfished for the history.

DR. BARBIERI: Marcel, basically this is to say the level that is being recommended now; this ABC does not significantly exceed what the fishery has been operating at for a long time. That did not cause depletion.

DR. ERRIGO: Previously the ACL was set higher than where it was set now at around 7 million pounds, and it was harvested under that catch level. The assessment showed no overfishing and it had never hit an overfished status. Part of the justification is therefore this is not a risk-prone ABC level, catch-level recommendation.

It was noted that all the sensitivity runs concur that overfishing is not occurring. Therefore, there is a low degree of risk of overfishing if the ABC is set at this long-term equilibrium MSY. Also based on the landings' history, there is a low likelihood of the landings reaching the new recommended ABC value.

The next category is the SEFIS presentation and update. The discussion basically was a recommendation for a workshop in order to help develop this video index, and that it would be beneficial to involve people from the Gulf of Mexico since they already have a video index in place, as well as several members of the SSC, Science Center staff, perhaps SEDAR staff and anyone else that was deemed appropriate to this task. The SSC had recommended holding this workshop within the next six months, hopefully, in preparation for the red snapper assessment. The next topic was the biological.

DR. BUCKEL: Just one quick comment on that; do we want to keep it that specific to the video index? Maybe that is a comment for Todd. Todd, we're just reviewing the workshop recommendation and right now it is the video index workshop, but would you want some other topics to be covered there like some of the biological sampling that is done, or selectivity is one thing I know that came up in the review, like using the video to get information on the size of the fish available, and then what is actually the sizes that show up in the traps to get at selectivity – I guess other issues besides the index.

DR. KELLISON: Yes, Jeff, it seems like that is a good idea to try to address a number of those issues. I'm a little hesitant to fully endorse that just because in the end I'm not going to be involved in any of that. I think probably we would have Erik, maybe Kyle; so Erik Williams, Kyle Shertzer and Lew Coggins, our assessment group, that probably would be most heavily involved and Nate Bacheler from our SEFIS group that would be involved in the index development to think about how it would be most appropriate to do that. It does seem reasonable to try to tackle a number of issues at one time.

DR. BUCKEL: I know in particular the selectivity of the traps came up in prior assessments. If that is something that could be gleaned from these data, then that may be something that could be put on the agenda of that workshop.

DR. KELLISON: Marcel is just pointing out that we don't have length data from the video surveys, but we do have more information subsequent to the last red snapper assessment that could help inform that selectivity form, whether it is flattop or dome-shaped.

DR. BARBIERI: In the interest of time, Marcel, I take your comment as something that we can put in our statement that says "and perhaps explore other issues that might be relevant".

DR. REICHERT: My comment to that point is it would be helpful if we can have a list of terms of reference so we know what we want to accomplish during that workshop to avoid making this as something that is covering way too much within the timeframe of such workshop.

DR. ERRIGO: I added this discussion now about perhaps adding other issues to this workshop that will discuss the video index, but that terms of reference should be developed so that the group can stay on task and stay within the time constraints of the workshop, whatever they may be. The next topic is the bio-sampling protocol issues.

The first request from the SSC was to have an overview of the different sampling programs and protocols that are at work within the South Atlantic, whether they be state-specific or federal; also how the program works within ACCSP, how their funding works when it comes to funding sampling programs and things of that nature; and what are some of the issues with these sampling programs and protocols that are encountered, such as fishermen not willing to give up fish or the need to buy fish for sampling?

Also, who is the main source of funding or guidance for bio-sampling, whether it be in the South Atlantic or even regionally larger than that. The SSC also requested that the Science Center give a presentation on their data collection program and how the sampling protocol works. That may be able to be rolled into the above overview; I'm not sure how that might work.

But I think one of the themes there would be does the Science Center use the bio-sample targets and the success or failure rate to modify its sampling protocols; and how does that process work? The long-term goal of these discussions would be to develop a better sampling protocol for the snapper grouper fishery in the South Atlantic, hopefully, anyways.

Then for my question and a discussion on that; I had written down that one possible alternative to setting the sampling targets based on percentage of landings from the last full year of landings' data would be to set sample targets, instead of the numbers of fish, proportion of fish landed; therefore, you wouldn't bust your sample or not reach it simply because your landings in one year just don't equate to the landings from the year you set your targets with the possibility of having either a minimum or maximum number of sampled.

The minimum being if you don't collect at least this many, it is not going to be useful for an assessment, and there is a maximum number of samples that can physically be processed in a year. That was what I had for that discussion. I don't know if I missed anything.

DR. BARBIERI: It sounds good to me.

DR. ERRIGO: That just left the mutton snapper and hogfish, which was just an update. There wasn't really discussion so I don't have any notes on that.

DR. BARBIERI: No, no notes needed, thank you, Mike. I think that was great for us to review. Mike, thank you so much, not just for the great notes but also for reviewing so carefully all of this and giving us an opportunity to comment at it as needed. I think we are ready to recess for the day. We'll reconvene tomorrow at 0900 hours, nine o'clock.

(Whereupon, the meeting was recessed October 22, 2013, to reconvene on October 23, 2013.)

The Scientific and Statistical Committee of the South Atlantic Fishery Management Council reconvened in the Crowne Plaza Hotel, North Charleston, South Carolina, Wednesday morning, October 23, 2013, and was called to order at 9:00 o'clock a.m. by Chairman Luiz Barbieri.

DR. BARBIERI: Good morning and welcome back to the second day of the October 2013 South Atlantic Fishery Management Council's SSC meeting. We're going to resume addressing the issues outlined in our agenda. Just for confirmation and review, we dealt with Item Number 8, which had originally been slated for this morning, yesterday afternoon since we had some extra time and had the ability to address it then.

It was really an informational item that required no action from the committee. We're going to be starting this morning with a discussion of Item Number 9, SEDAR 32 Blueline Tilefish Assessment Review. While we wait for Jim's response, at least we know that he is there and listening.

Again, we want to take a minute to thank George Sedberry for signing in for the webinar as well. That is dedication that goes above and beyond the call of duty. He is attending both in person and through webinar. For the Blueline Tilefish SEDAR 32 Assessment Report, we have a number of action items to consider.

For your reference, Attachment 17 is the SEDAR 32 assessment report in your briefing book. Steve Cadrin, who chaired the review panel, has graciously offered to give us a summary of the review panel discussions, main comments, and then walk us through some recommendations for application of our ABC Control Rule and P-star determination.

MR. HARTIG: Luiz, before we get started, understanding the government shutdown created a lot of problems that Southeast Fisheries Science Center in Beaufort had to deal with, I still would like to get a sense from the committee about moving forward with these reviews without having a presentation from the actual people who did the assessment.

These assessments are critical for our management from a council perspective and from your perspective as well. Steve has taken the necessary time to be able to present this. He was the Workshop Chair and certainly is intimately involved with the assessment, so that is a good thing.

But still not having at least on webinar the people who made the presentations, who actually did the assessment, that is problematic for me. The other thing is just to ask someone from the SSC to dedicate the time to give this presentation, you all have enough to do. We give you plenty to do. I know that workload on top of what you normally do is a lot. To have this added on top of that is to me above and beyond the call of duty. I appreciate Steve's willingness to do this, but I have heartburn significantly about moving ahead without having these presentations. If you all feel that you can do it, that would be fine with me.

DR. BARBIERI: Ben, I think that is an excellent point that needs to be discussed. I would like to hear more from the committee on this; and just to confirm attendance of the Science Center through webinar; do we have a list of attendees there?

MR. CARMICHAEL: Yes, we do, Luiz, and a number of folks from the Beaufort Lab are on the webinar. Erik Williams is here, Karl Shertzer, Lew Coggins, Rob Cheshire, I think I saw Kate in there. The bulk of the folks are there; certainly Erik who is the team leader and hopefully can answer the technical questions if you guys should have some that can be answered without really showing anything. We don't have that capability, but they are here and listening, and we can direct questions to them.

DR. BARBIERI: Well, to that point, Erik, sorry to put you on the spot, but this is really an issue that I think we need to discuss and have addressed. Can you explain to us why there is no presentation on this assessment from the Science Center? Usually, whether through webinar or in person, we have the Science Center actually give the presentation.

To tell the truth, we had an issue on the Gulf side that Bonnie Ponwith felt that the assessments should be presented directly by the assessment scientists from the Science Center, because council staff had volunteered to give some of the presentations in person instead of through webinar. To me, it is something that we need to find out. I think it would be good information for the committee to hear how we came to that decision. Erik, can you give us some information on that?

MR. CARMICHAEL: Erik, we should be able to hear you. You should be able to speak.

DR. BERKSON: Erik, this is Jim Berkson, I can hear you; I don't know if anyone can hear me.

DR. WILLIAMS: All right, can you hear me now?

DR. BARBIERI: Yes, now we can.

DR. WILLIAMS: The shutdown was a disaster in many ways, and we were basically ordered to not do any work. We could not even look at our e-mail. As you can imagine for these meetings, we tend to put the presentation together a couple weeks before the meeting. Well, that is right when the shutdown hit us.

There was no activity occurring as far as putting these presentations together or any prep work for this meeting, because we were basically told we could not do that and so there was no work done. We did have a call, me, Bonnie and John Carmichael, to lay out what we would be able to provide, which was essentially nothing really for this meeting. The decision was made I guess, with John listening in, to proceed with the meeting even though we were not going to be able to be there and we were not going to be able to provide any presentations. That is about all I can offer.

DR. BARBIERI: Okay, thank you, Erik. I guess that helps us understand the reasoning. Obviously, the shutdown was something that all of us are aware of, and we realize that there have been impacts across the board through federal government activities. I understand the reasoning, but I wonder in terms of the committee I would like to hear a little more.

We heard from Ben as a council member. I would like to hear from Michelle as our SSC liaison and from the committee members on whether they feel really comfortable to proceed with this review without an assessment presentation. By the way, what Steve volunteered to do was not really present this stock assessment.

As the Review Chair, what he volunteered to do was to present a summary of the Review Panel's discussions and some of the recommendations. I don't know if recommendations for additional analysis are included in this, Steve, and whether additional analysis was completed and included in this presentation.

DR. CADRIN: Luiz, outside of the context of the shutdown or the inability to have someone from the Beaufort Lab present the assessment, Church and I had discussed even at the Review Workshop putting together the information that we needed as the SSC to derive P-star and the ABC recommendations.

Really, what I was trying to do was match information from the assessment into our framework for P-star so we can go forward. I don't intend to answer detailed questions about the assessment. I'm sure that Church and I and others who were there could engage in some discussion, but we really can't speak with authority on the assessment as having not known the details. I'm not trying to do that. I'm really trying to do something we had intended to do all along, which was to take the results from the assessment into the ABC recommendations.

DR. BARBIERI: Yes, this makes perfect sense. Thank you, Steve and Church, for going forward with this. The question remains – and again I think it is a matter of procedure and protocol. If we think about all the points outlining the recently approved National Standard Guidelines 2 and the role of the SSC in actually identifying or confirming what can be considered best available science and the weight that these decisions from the committee actually have on the scientific inputs that are being used for management decisions; I would like to ask you to reflect on that and hopefully give me some comments on how you feel.

We could consider postponing this review until our next meeting in April. I don't know what the consequences would be in terms of council actions. We definitely don't want to come up with any situation here or create a situation that would create a problem for industry. I think that we need to hear a little more from the committee and from our liaison about this review.

DR. DUVAL: I have similar concerns as Ben has expressed in terms of not having some presentation. I think given mostly that this was a benchmark assessment, obviously, that can be done via webinar as well as in person. We have done that before. I fully recognize the problems that the government shutdown created just in terms of completing additional analyses, having a final report available for the public.

I think that there are probably alternatives that could be considered. In terms of a no-cost alternative, perhaps allowing the analyses that would have been completed had the shutdown not occurred to move forward and then perhaps consider convening a two-hour webinar or whatever it might take of the SSC that was specifically devoted to reviewing this stock assessment and the snowy grouper assessment that could be convened.

I don't know if there is time to do that in advance of our December council meeting. I think it is clear just looking at the results of this particular assessment that probably not a lot is going to change in terms of the overfished/overfishing designation. I think just given the nature that this is a benchmark assessment; it is one in which I think the analysts did the best that they could with the very limited amount of information that they had.

I think this particular species is certainly a poster child for why we need some cooperative monitoring to help us get the fishery-independent data that we need in order to provide a better picture of what is really going on with these stocks. Steve will probably run through some of the discussions that the Review Panel had regarding some of their concerns about I think indices and stock structure and things like that.

We don't have that information, and I think probably what you'll hear from the public is some of their concern about not having enough information going into an assessment. Like I said, you can't point a finger at anybody. That is just a problem that we need to try to tackle in some fashion. I think ultimately, as Ben said, the decision is up to you as to what you would like to do moving forwards in terms of a presentation. I think these are just some alternatives that I would encourage you to consider.

DR. BARBIERI: I would like to hear more from the committee regarding your thoughts on this.

DR. CADRIN: Yes, a few thoughts. One is that even if the Beaufort Lab personnel were here, I don't think we would want to repeat the review. We don't want to repeat the entire SEDAR process here in a few hours of our agenda. Even if they were here, we wouldn't want to do that, but what we do want to do is be familiar enough with the assessment to make a catch recommendation that we all understand and feel comfortable with.

In that sense I think we need to have a summary of the assessment; the major points. The document has been available to us. I was hoping to go through some of those major points. However, if we have any detailed questions or major concerns, that is where I don't think we have the resources here today to follow.

Then if we have to schedule some kind of a webinar, we need to balance the strength and weaknesses of having a live in-person meeting with a webinar, because you do lose something in webinar, too. One way forward might be to go through a summary of the assessment, identify if we have any major concerns or detailed questions or if we have enough comfort in the room to go forward with catch recommendations with what we have.

DR. BARBIERI: Is everybody in agreement with that? It makes perfect sense to me.

DR. BERKSON: Luiz, I just wanted to mention I believe all the analysts are online via webinar right now from Beaufort. I think if there are any questions about the assessment, they are available and could answer most if not all of them. I also want to mention sort of the obvious; that the government shutdown was as frustrating to the Science Center and its employees as it is to everyone else. None of us asked for this, and it has hurt our ability to do the work that we want to do, that we said we were going to do. I just wanted to throw that in as well.

DR. BARBIERI: By the way, I think that the feeling from the SSC, myself personally, for sure, is not really directed towards the Beaufort Lab staff or the analytical staff or the Science Center in any way. We understand that what happened happened. To tell the truth, in my view one of my concerns is actually to be fair with the analytical staff.

Usually the protocol calls for a presentation from the Science Center to the SSC. Since that presentation is not available, we are missing that part. I'm not sure if we are being completely fair with the analytical staff now at this point to proceed with a full review without having that component where they would be able to explain things that in my opinion go above and beyond just what we can read in a report.

All of us understand that reports are put together to be as thorough and complete as possible, but we can never capture there all the nuances of issues. Having analytical staff give a presentation really gives us a different perspective on issues to be discussed. I appreciate the staff being available for questions

I still think that a piece is missing that compromises to me the usual standard protocol and compromises the ability of the council to consider that the SSC review has been as thorough for these assessments as they have been in the past and we expect will be in the future. Anne, you have some comments?

MS. LANGE: I was just wondering; I'm assuming that the Center staff has reviewed the presentation that Steve is going to provide. If they have additional input slides or whatever that could be e-mailed here and presented on it through the webinar and have them discuss them; is that something that would provide additional background that can be done fairly quickly? Do they have tables or something available that they could send up?

DR. BARBIERI: We need to ask him, but I think that this would be far less than ideal for them to really put something together that would be done right now, basically. It hasn't been part of our briefing book. I'm not trying to be disruptive and obstructionist, but I think that this process requires a level of protocol that is standard.

It is one of the things that I think we need to be careful about. Steve, I would think that if we follow your recommendation, your idea; you know, give your presentation, summary of the Review Panel, we discuss some of the issues, that would give us a chance to identify some of the problems, some of the discussion points that we can get from staff; and then we will have a better idea and a better assessment of our ability to actually come up with a conclusive review or not.

DR. CADRIN: I'm not trying to be a troublemaker here. I was really just trying to make the best of the situation. The first thing is to recognize that as many of you know from previous SEDARs, this has a cast of thousands. These are the people who were at the review workshop for blueline tilefish, many more for Gulf menhaden, which was the other stock that was reviewed.

Kevin Craig was the lead from the Beaufort lab, did a lot of the heavy lifting. Logistically and documentation-wise, Julia handled a lot of that work as well. We're somewhat lucky to have

people here who were there so we have some continuity. We were lucky to have Church on the Review Panel with his experience with tilefish species.

We also had a strong review panel, in my opinion, as well as a strong analytical team and a lot of active observers as well. I think there was a lot of talent in the room. From my perspective, we got the job done well. My approach to this is in lieu of a presentation by Kevin or someone else at the Beaufort Lab, to really just give a brief summary as it is relevant to P-star.

There are a lot of issues in the assessment, research recommendations and things like that; but for making a recommendation today, I really pulled most of this out of presentations that Kevin had given to the Review Workshop. I think he had about 150 slides. I tried to boil those down to about 25.

I did use some subjectivity in what we would need to make our decisions; the data, not all the data, just those that are in the final assessment, the assessment and just the accepted models, and then the results as they pertain to our catch projections and recommendations. Then really what I had intended to do all along was just go through the P-star scoring that is in our framework and suggest some of those scorings for our discussion.

But I guess before we get into that second bullet, we really do need to see if we're comfortable enough with the assessment, so I'll do a full stop there. I will go through this relatively quickly. Natural mortality, this is moderate to low – I'm sorry, natural mortality of 0.1 lifetime, but it was scaled by age using Chernov's method.

This is the growth curve. You can see moderate to long-lived, living 40 plus years, but fast growth at young ages. It reaches its asymptotic size fairly quickly. Female maturity; the base run used the previous maturity, but there was a reanalysis of those data and a sensitivity run. Again, despite the longevities, moderate to early age at maturity.

Commercial catch has been captured since the beginning of the fishery. You see spikes in the early eighties, then relatively low catch, then a recent spike in commercial. There are two major fisheries, longline and handline. There are some discards, not very much at all, but they are pooled in with these landings.

Recreational landings had been very low, but then there has been a recent peak starting in the mid two thousands. This was mostly from the northern North Carolina, off the coast of North Carolina in the northern waters for both the commercial and recreational recent peaks. This is the total catch.

Again, we appear to have captured the beginning of the fishery and early spike and a recent increase and then decrease in landings with both recreational and commercial. I know you can't read these numbers, but they are more an inventory of data available. There is a relatively long time series of size distributions, but they are a bit spotty and they focus on different sectors of the fisheries over time.

Really, the age compositions are very recent, so recent for commercial and recreational. There are no fishery-independent indices of abundance. There were three developed through the data

workshop for headboats, commercial handline and commercial longline. These are the three indices that were in the assessment.

There were explorations for much longer headboat series that more or less confirmed the trends, the later trends from the commercial series. Overlaying both the catch and the trend of the abundance trends indices, again we see we've captured the initial development of the fishery, the initial drawdown of the fishery as indexed by the headboat index, then some period of stability with the commercial indices; and a recent pulse in abundance that was with the commercial handline index; and somewhat lagged from that, the peak in catch.

There is some correspondence between the exploitation history and the abundance indices we have. As you can see just from these raw data, the models were able to come up with a consistent story for these. I think you are all familiar with the Beaufort Assessment Model. It is used for most of the analytical assessments, age-based assessments in the region, so I really won't go through this. This is really just the specifications to that.

The Review Workshop felt that these were all reasonable decisions about the timeframe, the plus group, how growth was handled, recruitment and really just how the model was specified using those three fleets; those abundance indices, separability, selectivity. I think you are all familiar with that.

The input data that was available; this is really just a summary slide. Recreational; and we have the time series for each commercial handline and longline fleets. Age compositions for handline, longline, and recreational; recreational there were too few to have an annual age composition, so those were pooled across years.

The three indices, what I have in bold is perhaps the biggest data decision that we discussed, and that was excluding the length compositions for a number of reasons. The Review Workshop asked for several exploratory analyses with length composition to see how it fit. We agreed with the Assessment Workshop conclusion to exclude it, because it did conflict with the other data sources, the age composition and indices.

There were changes in sampling over time, focusing on headboats early in the series; then the general recreational fleet later in the series; and a general poor fit to the length data. The Review Workshop agreed with that decision, but that was probably the major data decision that was made, and that they were all iteratively reweighted.

This again is just the specification of the Beaufort Assessment Model. Perhaps the biggest decision here from perhaps the default BAM would be fixing the steepness. There were some explorations of trying to estimate steepness, but it just was not well estimated with the data. It was fixed at 0.84 with some justification based on Meta analyses, both from a local one, Shertzer and Conn, and then Myers et al; and then an analogy to golden tilefish as well, and they all support a steepness value of 0.84 for the stock-recruit relationship.

Getting into the model fits, as is usual, the catch was put in with low CV and the model fit it almost exactly. Those are the three fleets, recreational, commercial handline, and commercial longline. The model fit the age compositions reasonably well with a few exceptions, but for most of those years and fishery sectors the model fit the age compositions quite well.

The model fit the CPUE series, the fishery-dependent series, implying that they have a lot of noise. From the recreational headboat, essentially drew an inference of a drawdown during that early period of the fishery. It is captured with noise with the recreational index. The commercial longline index was noisy but relatively flat during that period of the 1990s, early 2000s.

The commercial handline did capture this increase recently, and there was a reflection of that in the removals as well. Again, with noise it is fitting these three indices fairly well. Looking at the fishing mortality, of course, it reflects the landings somewhat; but showing that after an early period of development of low fishing mortality, fishing mortality was up to fairly high levels with annual variability.

The recent period, 2008,'09 and '10, showing a peak in fishing mortality recently, and then a reduction in fishing mortality in the last year. Recruitment residuals show that the recent increase in stock and landings was driven from a series of strong recruitments earlier in the previous decade.

Of course, the model didn't have much to estimate more recent recruitment; those are just taken right from the stock recruit curve with no deviation. The numbers at age again reflect drawdown from an unfished fishery; so in the early seventies had a lot of fish in the plus group, the pink. That was depleted over a decade or so, so there is no longer many fish in that plus group.

A period of relatively low stock sizes and gradual decline from the '80s and '90s; then this increased recruitment in the 2000s, and that drove an increase in abundance; but that was temporary and the abundance has since come down. This is the spawning stock biomass; again going from unfished levels in the 1970s with a drawdown in the '80s to less than Bmsy and less than the minimum stock size threshold throughout the late '80s through the early 2000s.

With the increased recruitment, there was a temporary increase in spawning stock biomass and then a decrease such that in the last two years the estimates were below the minimum stock size threshold. We see total biomass; we also see fishing mortality related to Fmsy; low F in the beginning of the series; variable F fluctuating around Fmsy from the late '80s through the 2000s, but recent high fishing mortalities in 2008, '09 and '10.

In the last year a pretty substantial reduction in fishing mortality, but still overfishing where fishing mortality is greater than Fmsy. There was a retrospective pattern in this in both fishing mortality of overestimating fishing mortality and underestimating spawning stock biomass. There is a bit of reassurance that in the most recent year we've had consistent estimates.

With one-year peel, we're getting consistent estimates and it is really before that that we're getting some retrospective inconsistency. The interpretation there is that is the model trying to fit the increase in landing and CPUE during that series. During years of increase, the model had trouble fitting that and was actually overestimating F and underestimating spawning stock biomass.

Now that that temporary increase appears to be over, the model appears to be more consistent. Looking at all of the sensitivities that were done, I didn't go through all of these, but as is usual sensitivities with natural mortality, steepness, maturity, different weighting scenarios, trying

different catchabilities to try to understand that retrospective pattern; as well as recruitment deviations to try to understand the retrospective pattern indices on their own.

No recruitment deviations essentially in age-based production model and alternative selectivities. You can see with all these our stock status determination is relatively robust to the sensitivity analyses; that the stock is overfished and overfishing is occurring, but there are some that have different status determinations.

I should clarify that these are truly exploratory sensitivity analyses; they are not necessarily reliable or reasonable assessment runs. They are really just to assess the sensitivity to a range of different inputs. None of them were considered alternative assessments for status determination. Looking at the Monte Carlo Bootstrap results shows kind of a similar message as the sensitivity analyses that the stock status determination can be made with fairly high probability.

Overfishing has about a 94 percent chance of overfishing – sorry, 93 percent. Seven percent of those are to the left of that F threshold; and 69 percent probability that the stock is overfished. This is a plot that actually came from the Review Workshop, and it was comparing all of the different major alternative modeling approaches. We have the BAM base run.

The Review Workshop identified this as the best scientific information available for status determination. The Review Workshop actually reviewed the Monte Carlo Bootstrap as a different estimation method. And more so than previous groups, I think they viewed this as a different modeling approach, but they did identify that as the best scientific information available for stochastic projection.

There was an age-structured production model; again as I mentioned, just turning off the recruitment deviations in the Beaufort Assessment Model and then an age-aggregated production model aspect. It is a little bit off the screen here, but you can see that for fishing mortality, except for the lowest confidence limit of the MCB, we're getting agreement on all of those that we're having overfishing occurring, and even the exploitation history is the same, going from the development of the fishery, fluctuations around Fmsy, recent peaks in fishing mortality well above Fmsy, and a reduction but still above Fmsy.

Looking at biomass again, most of them have a drawdown from unfished levels; two levels either above or below Bmsy from the '80s to the early 2000s, but then a recent decline. The Beaufort Assessment Models, the age-based models suggest a low biomass relative to Bmsy. The production model actually comes in about Bmsy at the end, but all of the age-structured models are less than Bmsy.

Getting into the information we would need for catch projections, there is an Fmsy projection. This Fmsy is 0.302, I believe. You can see that allows the stock to increase to near Bmsy in the medium term; at landings of about 200,000 pounds. F rebuild was iterated for this; and as it turns out, the stock can rebuild at very slightly less than Fmsy 0.3. Essentially Fmsy allows rebuilding in the long term; and so if we are to go forward with a P-star approach, it is likely that our percentile of catch will be less than the F-rebuild catch.

In the decision tree, it appears that our ABC Control Rule would kick in and that would give us a lower catch than the F-rebuild would. My intention was to proceed with suggested P-star scoring

for SSC discussion, but I think we should do a full stop there to see if the committee is comfortable going forward with this.

DR. BARBIERI: Are there any comments or questions? Steve, I think that we are ready to move on to the next step.

DR. CADRIN: Okay, so just reviewing what you already know, the South Atlantic framework is that P-star should range between 10 percent and 50 percent, 50 percent for a perfect assessment. The ABC can equal OFL, but there are penalties built into that based on assessment information, uncertainty, stock status and productivity/susceptibility analysis.

Each of those four penalties ranges 0 to negative 10; and if you had a perfect assessment, you would end up with a P-star of 0.5. If you had the lowest scoring on all of them, you would have a P-star of 0.1. Going through the assessment information, what I tried to do is bold – Church also took a look at this last night, so these are just our initial suggestions; that it is a quantitative assessment.

We have estimates of exploitation of biomass, so a fishing mortality rate and spawning stock biomass, and we do have MSY-derived benchmarks. Now, one thing we might want to consider here is that steepness was fixed based on a tilefish-like proxy. I think the next tier could be considered for this, but we do have MSY-derived benchmarks. Would you like me to go all the way through and then come back to them one by one?

DR. BARBIERI: I think that might be easier.

DR. CADRIN: This first one, it is either going to be the 0 penalty or a 2.5 penalty it would seem would be reasonable. For uncertainty, for this one, our top tier of uncertainty requires that environmental variability be included in the projection. There is variability in natural mortality, but I think that is explicitly stated in the second tier, so I'm not sure that really fits that criterion.

What we're suggesting if this is a high evaluation of uncertainty, we have re-sampling through the Monte Carlo Bootstrap and also critical inputs such as natural mortality and steepness. Landings are part of the model. They are fit in the model as stochastic; they are not deterministic.

Age and growth parameters, we do have error in the age compositions in the Monte Carlo Bootstrap. We do have recruitment uncertainty for projections and reference point calculations. The key for this level is that reference point estimates reflect more than just uncertainty in future recruitment; and certainly the MCB does that.

The next tier down would only reflect uncertainty in recruitment, so we're doing more than that. I think we're doing more than the third bullet and we don't entirely meet the first bullet, which is why we are suggesting the high level of evaluating uncertainty. Moving on to the third, this one is relatively easy. If we accept the SEDAR assessment, the stock is both overfished and overfishing. That would be a penalty of negative 7.5.

One thing that doesn't come directly from the SEDAR assessment is the productivity/ susceptibility analysis. What I did was use the document that is in our briefing book. This is

from the appendix. I don't know the document number in front of me, but it was in our book. Part of the Lenfest Initiative to do PSA nationwide, there is a South Atlantic section of that report. Their scoring is for productivity.

A score of 2 for susceptibility, relatively high; a score of 2.75 for blueline is in the table here. That is where the values came from, and we can go through their derivations. They seem to make sense. I think they are very consistent with the SEDAR assessment; medium age at maturity, medium size at maturity, high maximum age, medium maximum size, low fecundity, low reproductive strategy, and high trophic level. Again, I think those are reasonable.

Productivity scores; you are getting all highs for availability and encounterability, medium for selectivity and high for post-capture mortality, relatively deep species. Again, those make sense. I think they're consistent with the input to the SEDAR assessment. If we accept the MRAG analysis, then that would give a high risk, low productivity, high vulnerability and susceptibility score. That would be a penalty of 10.

Just carrying this all the way through – this is the last slide – if we assume that this is the top tier assessment we are estimating; we have a quantitative assessment with estimates of MSY, we have zero penalty. For our uncertainty, we're projecting forward with recruitment and other major sources of uncertainty in the Monte Carlo Bootstrap. Stock status; overfishing and overfished and a high risk from PSA. If we accept all of those, and I think we should discuss all of those, it would result in a P-star of 0.3. The ABC would be based on the 30th percentile of the projected catch at Fmsy.

MR. HARTIG: Before you go back through these, sometimes you look at these assessments and some things have to make sense. I need to know from the analysts where the high Fs are coming from during that 2009, or '08, '09, and '10 timeframe; because we know that the economic situations in the country were so bad that recreational people aren't really going fishing, and they're certainly not going fishing that far offshore where most of those fish occur.

The other thing is that the blueline tilefish catch is tied directly to snowies. When snowies are open, we can catch blueline. You can't catch blueline independently anywhere in the South Atlantic except where that commercial fishery exists north of Hatteras. The rest of it is tied to a bycatch with snowy fishery.

It has never been a targeted fishery in anywhere that I've ever fished. It has always been a bycatch fishery. All the restrictions on snowies have gone and helped blueline come back to some degree. I think probably that peak is probably part of that. Now why the decline on the last two or three years, I can't explain that.

My interactions with blueline; certainly, the abundance has increased and size and abundance have both increased in the area where I fish. Now it is not substantial, but I catch them regularly again. The stock has improved. There was some improvements shown in that slide; but to me where are these high Fs coming from? If somebody can explain that to me, that would help tremendously, because I don't see anywhere where this kind of effort is showing.

DR. DUVAL: Just really quickly, Ben, remember that January of 2011 is when the 240-foot closure went in, so that resulted in a pretty significant decrease in landings. That was not lifted

until I think the very beginning of May in 2012; so any information in commercial landings that were coming in during 2011 occurred because of the exempted fishing permit that North Carolina applied for and received.

That was not received until August of 2011. There were a maximum number of 100 trips that were allowed. We had to have 20 percent observer coverage. In between our staff at the Division of Marine Fisheries and the NOAA staff, the port sampler up there, I think we captured a majority of the trips in terms of sampling for lengths and otoliths. That information all went into TIP and was included in the information that was available at the data workshop. When you see that decline in 2011, that is where it is coming from is from that closure.

DR. BARBIERI: Mike, you have something to add to that?

DR. ERRIGO: During the Review Workshop, there were a lot of questions about that huge peak at the end of the time series. I looked into the data to try to see if there was evidence besides just the estimate of landings to show that there was actually a peak there. Nothing is definitive. However, recreationally there was a big spike in intercepts of blueline tilefish during that time period.

The percentage increase in the intercepts couples nicely with the percentage increase in the landings of tilefish in that time period. There is evidence that also the bulk of these landings are coming from northern North Carolina, so north of Hatteras.

DR. DUVAL: Just to that point; I think anecdotally what we have heard is that when the tuna fishing is not good up there, the charter captains are focusing on blueline tilefish. That may add a further piece of information to that.

DR. CADRIN: Yes, there was one anecdotal piece of information that was added was a recreational article on deep-dropping that was consistent with this increase; that there was at least a trend among one segment of the recreational fishery that was deep-dropping for blueline tilefish.

DR. BARBIERI: I think this helped address, Ben, a lot of your questions there, but I would like to also give the Beaufort analytical staff a chance to comment on that if they have any comments that would add to this. Erik, I think you are un-muted.

DR. WILLIAMS: Yes, can you hear me?

DR. BARBIERI: Yes, we can.

DR. WILLIAMS: There is really probably not much else to add. I think Michelle and Steve and everybody covered it pretty well; and actually the figure Steve has up right now pretty much summarizes. I mean, the landings did increase, and it is not just a single-year spike or anything; it is multiple years. When the landings go up, F goes up. I think it is pretty clear that is what is driving the higher Fs. I think Michelle is right, what is driving the decrease in the Fs and decrease in landings in the last year is the deepwater closure.

DR. BUCKEL: This is my fault for not looking at the assessment for this number. What were the PSEs for the MRIP values in the 2000's with that spike; were they reasonable?

DR. ERRIGO: I have that information; I can look it up for you. However, if memory serves, the PSEs dropped significantly in that period.

DR. CADRIN: Yes, the Review Group had the same question, and we had asked to look into those and they did not increase, which was the concern. I think they were even a little bit better. It is probably the more intercepts that Mike had talked about earlier.

MR. HARTIG: On a normal assessment we use the last three years as an average to calculate your benchmarks; is that correct?

DR. BARBIERI: You mean for exploitation for fishing mortality?

MR. HARTIG: Yes, for F.

DR. BARBIERI: Well, it depends. It depends on the assessment and choices from the analytical team and the review panel recommendations; but usually the analytical team, given the high level of uncertainty in that last estimate, looks for a geometric mean.

MR. CARMICHAEL: Not to calculate the benchmark, but to calculate the metric by which you evaluate the benchmark.

MR. COLLIER: How did the Review Panel discuss getting rid of all the lengths? There is no age comps for this fishery prior to 2006, I think. It seems like there is really not much information beyond landings and some indices that are based on dependent time series. It seems like you would want that type of information in the model.

DR. CADRIN: That was one of the major discussion points at the Review Workshop, was that looking at this inventory, this supports exactly what you said. Their size composition, some from the beginning of the fishery, you would think that this would be a major source of information. This was looked at. We looked at runs that had just size composition, size and age.

We really ran this through the ringer to support what the Assessment Workshop had decided was there is actually very little consistent information here. These size frequencies were kind of all over the place. They had design issues where they would be taking from different sectors and different areas throughout different periods.

It didn't match the trends in the CPUEs. Yes, there were data conflicts, design issues, but that was discussed at length; poor fits, changes in sampling and conflicts. We were fairly convinced that was a wise decision. Going in, I felt that that was probably one of the strongest piece of information, and I was convinced otherwise.

DR. BARBIERI: I guess for you, Steve and Church, given that decision – and I trust it was the right decision to make – what would be in your assessment the impacts on the ability of the base model to provide the estimates that we need there?

DR. CADRIN: It's in our report, but I believe the runs that included length compositions were not acceptable runs; that they would not have been acceptable as a basis for fishery management, because they had too much conflict in them.

MR. COLLIER: What was used to estimate selectivity during those time periods; because off South Carolina was a majority of the landings in the '80s; and in the 2000 or late 2000s, 2010, you are talking of the stock off North Carolina. That is the driving of the landings.

DR. CADRIN: Yes, so selectivity was fixed according to the recent age compositions, constant selectivity over the entire time period for each of the three fleets.

DR. ERRIGO: There was one other caveat about how the landings are distributed differently over time, and all that. The indices of abundance were cut off at different places due to issues. They were cut off so that the indices were south of Hatteras and north of Canaveral I think – is that right, Canaveral – yes, south of Hatteras and north of Canaveral. However, especially recently the bulk of all the landings come from north of Hatteras and south of Canaveral. However, the trends match the trends in the landings, which is why I think the Review Panel felt it was okay to move forward with the assessment.

DR. BARBIERI: Are there any other questions about the assessment?

DR. JIAO: I have a quick question about age composition, because usually the age compositions are some subset of the length frequency. If there is some problems with the length frequency, then how about the age composition?

DR. CADRIN: Yes, if you'll notice the inventory shows that the age compositions are all in the recent period, which were more representative of the entire fisheries. It was the historical lengths that were inconsistent.

DR. JIAO: In this case are there any attempts to look at whether the model fit makes sense or not by only using the most recent year's length frequency or whether there is an information confliction between the length composition and age composition from the recent years?

DR. CADRIN: I don't think so, but I'll defer to the Beaufort Lab in case that was an exploration that was made.

DR. BARBIERI: Erik, do you need Yan to repeat that question or you guys got it?

DR. WILLIAMS: No, I think we got it. To be honest, I don't remember if we looked at just those specific years, just looking at the length and age data. I mean, typically one of the things we have been advised from past review panels is that when we have both length and ages that come from the same fish, we shouldn't be putting them in the model together because it is kind of double counting the data. In that sense, we wouldn't want to necessarily fit the length and age data together simultaneously, especially if those samples are coming from the same fish.

DR. JIAO: Yes, that makes sense, because it is double using the same type of data. I was kind of wondering whether length frequency makes sense or not; because usually if length frequency is not believable, it has some important problems where the age frequency is questionable.

DR. BARBIERI: Are there any other questions from the committee? I think, Steve, unless we have some additional technical questions about the assessment, I think the best course of action here is for us exactly to go over the P-star and discuss in detail our choices there.

DR. CADRIN: The first decision would be the penalty for the assessment information. We do have analytical estimates of fishing mortality in spawning stock biomass and related MSY reference points. The only fly in the ointment there is that steepness was fixed. It could be considered to go to the next tier if it is considered those MSY benchmarks are only approximated.

DR. BARBIERI: And to that point, I do feel that is the choice that we've made in the past. I think it is justifiable to go to that second tier. I don't have a problem with the fixed steepness here. I think that the use of the Shertzer and Conn paper Meta analysis is reasonable. To some extent, I think that using a fixed steepness in lieu of an SPR proxy actually allows you to account better for some of the uncertainties.

In this case I think that this was the right choice, but to me it doesn't compare to some of the other assessments that we have where you can actually reliably estimate steepness and have a direct estimate of MSY. It is not comparable to a fixed steepness. Are there comments from the committee? Right now what we have now is Steve and Church are suggesting that we go with that Tier 1 in that first dimension. I'm proposing an alternative based on the rationale they discussed, but also in terms of consistency on how we handled this in the past.

MR. COLLIER: I think before we get to that, we want to make sure that the Review Panel was comfortable using this assessment for management. I don't think that has really been brought up yet.

DR. BARBIERI: Good point, Chip. My reading of the review report implies that, yes, the Review Panel had, but I think that you're right. For the record here as the SSC meets, we should. That is actually the first action item, yes, is to consider whether the assessment is adequate for providing management advice. Steve and Church, and then I think the committee as a whole.

DR. CADRIN: Yes, our determination was that the BAM model was the best information available for fishery management; most specifically that the BAM base run was best science for status determination and the MCB was the best basis for a stochastic projection. The answer is yes, and those were identified as the models to use.

DR. BARBIERI: How about the rest of the committee, any disagreement, any level of discomfort with this assessment being adequate for providing management advice, characterizing the stock status, the exploitation level and the population dynamics of blueline tilefish in the South Atlantic waters?

MR. COLLIER: My one concern is that there appears to be a virgin stock that was found off North Carolina. It is really difficult for these models right now to be addressing multiple stocks. The level of information that we have in the South Atlantic, to be able to manage multiple stocks and deal with mixing and all that that comes with it, I know that is a limitation. That was a limitation going into this. I just want to reiterate that.

DR. BARBIERI: Very good point, Chip.

DR. CADRIN: Yes, sub-management unit spatial structure was a question that we talked about quite a bit. The early life history of blueline suggested there could be some regional transport and connectivity, but post-settlement there is likely local dynamics going on. You could have local depletions, as you said refuges that hadn't been fished before.

We just don't have the spatial resolution to parse that out. That is a research recommendation that we have, to look at the genetics and stock structure underlying this management unit; and if possible to incorporate spatial aspects into the assessment. I think we're probably getting as much out of the information as we can to do a regional assessment on them, never mind a spatial one, but that is certainly something that should be considered in management; if we are doing a management unit assessment, to consider the implications of sub-stock structure.

DR. BUCKEL: Along the same lines, were there any assessment model runs done where only landings and indices data used from south of Hatteras, so excluding this new fishery, if that what is, north of Hatteras?

DR. CADRIN: No, the only thing that was done is like Mike said – at least the only thing I think that was done was aggregate catch throughout the region, but trimming the CPUE series so that they don't get into this virgin area. It is in the catch, but it is not in the CPUE.

DR. BARBIERI: Now, one thing before we go to the next action item, which is provide fishing level recommendations consistent with the ABC Control Rule, considering items including in the fishing level recommendations table below – we have that table with all the parameters that we need to provide as part of our report to the council. But considering the stock status of overfished, our control rule actually – I mean, how do we handle this in terms of a rebuilding plan?

MR. CARMICHAEL: How does the ABC Control Rule apply in the case of the rebuilding plan?

DR. BARBIERI: No, in this case, because the stock is considered overfished, I think that National Standard Guidelines directs us to use F rebuild. I think this is one of the provisions that would direct us to go with F rebuild.

DR. CADRIN: But F rebuild and Fmsy are essentially the same. Fmsy is 0.302 and F rebuild is 0.3. It may be a technical argument. It is not going to make much difference.

MR. CARMICHAEL: However, F rebuild is not a specifically defined parameter within the guidelines at all. F rebuild is based on the rebuilding criteria that are chosen by the council. F rebuild is heavily determined on the rebuilding period that the council chose. The F rebuild that you see analyzed is the maximum, using the 10-year period since the stock could rebuild within 10 years.

The council could choose to rebuild in 5 years, in which case they could have a different F rebuild. That is the case. What we have to do is recommend to the council first what the status is. If it is overfished, then the ABC essentially will come out of the rebuilding plan that the council has chosen. That is how we have dealt with rebuilding stocks in the past.

What the SSC typically recommends is the probability of success for that rebuilding plan. The F rebuild you have now is 10 years at 50 percent. If you were to recommend, say after applying your control rule, a 70 percent chance of success, then the F rebuild will be different. The council could take that and do it in 10 years or do it in some time less than 10 years.

DR. BARBIERI: Exactly, and that is where I wanted to get to because at the end of our ABC Control Rule, we have actually explicitly there some guidance on how to apply that to rebuilding stocks. I wanted to make sure that we had on the record some discussion of this, because we want to make clear to the Regional Office, as they proceed in looking at this recommendation, and as we go to the December council meeting that we have a good understanding of how we are handling this.

MR. CARMICHAEL: Yes, I think to wrap that up, the expectation is this is a multistep process. Here you recommend the initial probability of success of the rebuilding plan. It is a recommendation to the council. You may choose 50 percent; you may recommend something higher. Then the council chooses its rebuilding plan. Between now and the council meeting, we will ask for projections that illustrate your recommendations.

The council will then choose its rebuilding plan in December, and then that will trigger a request for more projections that reflect what the council has actually chosen. It would come to the council then again in March when they would see what the outcomes are of what they have chosen for their rebuilding alternatives.

It is good to remind everybody that when you're dealing with the first-time determination of an overfished stock, it is a multistep process between the council and you guys making recommendations and then them deciding things such as what is the specific rebuilding time.

DR. BARBIERI: Before we go back to you, just something for the council members in attendance, our liaison knows that this is something that the council is going to get a presentation in December. We wanted to make sure you understand clearly as council how this process is going to proceed.

DR. CADRIN: I was just going to say that if Fmsy allows rebuilding in the medium term, then a P-star approach to ABC would have an even greater chance of achieving rebuilding in the medium term. Perhaps if we do have to make some recommendations to the Beaufort Lab for projections or the value of catch a P-star that we choose, we might want to look for medium-term projections at whatever our catch recommendation is, because I suspect that they will perform relatively well for rebuilding; that a P-star approach to ABC will perform well for rebuilding in the medium term.

DR. BARBIERI: Do we have a consensus – Jim, I hope you are un-muted as well listening to us – in terms of Tier 1 or 2 of that first dimension? Well, I need to hear your choice. Yes, so the consensus is for 2? Okay, so Dimension 1 is going to go for Tier 2 at 2.5.

For a second dimension, characterization of uncertainty; the Review Panel members – SSC members recommended using high characterization of uncertainty given the fact that the MCB Bootstraps have actually reflected more uncertainty than just in recruitment. This is basically the way that we have handled this in the past.

I don't see any reason for us to depart from that in this assessment, but I'd like to hear if others would have any comments, disagreements or suggestions. Hearing none; we then go with second tier and Dimension 2. Proceeding to stock status, this one is pretty self-explanatory and non-controversial. The stock is both overfished and overfishing is occurring, so we go to a penalty of 7.5.

Then the last tier, Steve presented the summary of how they decided to go with productivity and susceptibility assessment of high risk for blueline tilefish. I am personally in agreement, but I would like to hear from others if there are any questions or concerns with us going with that choice.

DR. GRIMES: A question for Steve. It probably doesn't make much difference, but with respect to the productivity, what exactly does it mean by low fecundity or reproductive strategy for tilefish?

DR. CADRIN: They have thresholds, and I don't remember all of them. They are in that attachment into our briefing book. All of those thresholds are in there. I don't know right now, but fecundity was your question? I assume it is based on published fecundity of blueline tilefish, and the multispecies threshold that they've built up for high, low and medium fecundity.

DR. BARBIERI: In terms of the total that we have there now, the P-star would be equal to 0.275 when we add all of those results from the control rule. Following our procedures for rebuilding stocks, our recommendations for rebuilding stocks, we suggest to the council the use of a probability of rebuilding equal to 1 minus P-star. In that case it would be 72.5 percent.

MR. CARMICHAEL: 27.5 percent.

DR. BARBIERI: The P-star, yes. Proceeding to our Table 3, of all the values that we have to add there, we have the overfishing and overfished evaluation. I think we all agree with the Review Panel recommendations to accept the base model. We have that deterministic set of values for biomass and exploitation. The exploitation one is; is that 2.37?

(Remarks made off the record)

DR. BARBIERI: That is an excellent suggestion instead of trying to walk us through this.

MR. CARMICHAEL: We'll be getting something wrong if we try to do it here.

DR. BARBIERI: Yes, exactly, good idea. This would be a good time for us to take a break.

MR. CARMICHAEL: Wait, there is one more before you go there that will affect this table. One more thing before we go to break maybe is to discuss MSST, if we could knock that out, because then that will help us know what to put in that table. Remember yesterday's discussion about 1 minus M versus 75 percent of SSBmsy?

DR. BARBIERI: To that point, John, I wonder if we should just provide both to the council, but make our recommendation to them. I mean, there is one that is in the books, right, as in the FMP right now.

MR. CARMICHAEL: I don't believe for this stock, because it hasn't been assessed before so I wouldn't expect there to be one for this stock. I think if you're comfortable with the council's preferred in most recent situations of using the 75 percent of SSBmsy, if you think that is appropriate for this stock, just recommend that.

DR. BARBIERI: I think that is basically what we discussed yesterday, and we seem to have consensus to go with that recommendation. Would anybody disagree with us moving forward with the recommendation of adopting MSST at 75 percent of SSBmsy? Okay, so we go forward with that. Now we're going to take a ten-minute break and get back here at 10:40 to review the table and finish the discussion of blueline tilefish.

(Whereupon, a recess was taken.)

DR. BARBIERI: All right, folks, we are back in business. This post-break discussion is going to be most interesting.

MR. CARMICHAEL: I thought it might be.

DR. ERRIGO: Blueline has made a miraculous recovery in the past ten minutes.

DR. BARBIERI: Right. Mike has filled in the values for Table 3. Our change in the definition of MSST has actually caused a change in stock status, which to some extent is predictable. This was one of the reasons that the council wanted to adopt this measure to avoid having these periodic peaks in recruitment over time change our outlook of the status; and at some point actually induce management regulations that may deem not to be as necessary, as intended.

In this case, because we were before very close to that line, it changes the definition, put us slightly above the line again, and prevents then the stock from being considered overfished. Now during the break Mike also reminded me that this change in stock status will cause a change in our P-star recommendation as well; because for Dimension 3 we no longer have a stock that is overfished of those two undergoing overfishing. Looking back at the stock status tiers and scoring, we would go –

DR. BERKSON: Luiz, can I jump in a second?

DR. BARBIERI: Sure, go ahead, Jim.

DR. BERKSON: I was thinking about this during break. I was just wondering since the definition of MSST is in fishery management plans I believe; is the SSC the proper body to change that? I mean wouldn't that come from the council?

DR. BARBIERI: We discussed this a little bit before, Jim, the fact that there is no explicit council –

(Remarks made off the record)

DR. BARBIERI: Right.

MR. CARMICHAEL: Yes, we had an agenda item yesterday where we talked about it. The council specifically asked the SSC to comment on the MSST and the alternatives that they've looked at in the past; specifically whether or not the 75 percent seemed to be appropriate as a default to consider for stocks; the SSC supported that.

This is the first assessment, first determination that the stock is overfished. When we do the assessment, we know that we have to consider what the appropriate values are for all of these stock criteria. I think we're doing completely the appropriate action; and now is the time for the SSC to make these recommendations.

As is always the case, it is a recommendation to the council and the council will consider it and then they will take the action. They could come back and say, well, that is all well and nice, but we want to use 1 minus M for this stock and come back to us to comment on that. But we are fulfilling what the council has asked for and following their guidance.

DR. BARBIERI: A little further on that; I think Jim's concern might have been that if we had in the books some explicit definition for MSST for blueline tilefish; but if we don't, you know, in this case –

MR. CARMICHAEL: I'm not clear if we put something in for all stocks back in the like sustainable fisheries days, if it was just listed for everything.

DR. BARBIERI: But, Jim, to your point, this is something we discussed before. The council has actually asked us for that 75 percent of SSBmsy yesterday as a default. We discussed it and we have agreed and had consensus that this would go forward. As John explained, they can always come back and ask us to consider different value for blueline tilefish. But in this case we're going forward with the recommendation that it is in line with their desired level of default.

DR. BERKSON: I appreciate the clarification. I just wasn't sure of the proper order in which we should take care of those things. Like I said, a clarification was helpful, thank you.

DR. BARBIERI: Mike, can you help us, because I don't have those values here in front of me – I'm sure I could pull it up – in terms of the change that caused in our P-star, so it would be 2.5. Now we have a P-star value of 0.325. No?

MR. CARMICHAEL: The stock status tier where it says 7.5 here it will go to 0.5 – I mean 5 the way it is presented. It goes to 5 percent from 7.5 percent. It will be back to 20 where it was before the adjustment.

DR. BARBIERI: Steve and Church now feel that their previous recommendation of 0.3 P-star is validated. Now we have the P-star at 0.3 percent. I don't know if we have the projections.

MR. CARMICHAEL: No, we don't. Well, there are issues with the projections. The Review Panel asked that the projections include the actual 2012 landings. We sent around that file which showed you the history of landings, the projections, and then where the 2012 landings that were assumed versus what was actual. There was quite a difference in those. One of the projections – and that was one of the things that would set with the Science Center, because I knew we were going to be adjusting P-stars and needing new projections.

I wasn't concerned about getting those projections with the actual 2012 landings for this meeting. If we don't have any of the projections, we can simply go forward here with what we have about this is what we recommend. The council will then do the rebuilding. We should comment on any other aspects of the rebuilding program we'd like to. Then we'll see the actual number that associated with that rebuilding down the road.

(Remarks made off the record)

MR. CARMICHAEL: Yes, that's true; I guess it is no longer rebuilding, we won't have to worry about all of that process, so we'll be looking at ABCs based on preventing overfishing with a 30 percent chance that overfishing does not occur. That will simplify actually much of what we talked about at the start of this discussion into probably fewer projections being necessary and an easier and faster process for the council.

DR. BARBIERI: Correct, exactly. Now, the last action item that we have under this discussion is to provide guidance on the next assessment in terms of assessment type and timing as we usually do. I wonder, John, if the timing would be now aligned with your proposal for assessment timing. If blueline tilefish falls under that core list of species, then they should be already on that schedule to some extent?

MR. CARMICHAEL: Yes, they would be. We could talk about the type. I've heard a little discussion on occasions about the comparison between the age models and the production models, and it's not a more simplistic approach, maybe streamlined wouldn't work. Based on our discussions about that scheduling, if there were stocks that maybe could slip down to another level of assessment and not require quite so much resources, maybe this is one. The other issue I think to consider is the impact of stock structure on how it gets assessed. If we think there are multiple stock units out there, then that is something to consider for the future assessment and probably should be resolved.

DR. BARBIERI: Mike, I think those are two points that we need to capture there. We're going to have to be explicit in our report to the council that, yes, we want to be conscious of this issue and evaluate the stock structure. Then I would like to hear more from the committee, and Marcel is first in line, regarding the type of assessment given the discussion that we had yesterday about SEDAR resources and efficiency.

DR. REICHERT: One comment; I don't think that the new video index will provide much in terms of a new index for blueline tilefish. I initially thought, well, then maybe an update would be appropriate; but given what John said, John, could those things be happening under a standard or would that be an entirely different category or would that constitute a new benchmark?

MR. CARMICHAEL: I don't know; that's a good question. It might constitute perhaps a new benchmark. If you were to change the basis, yes, that is possible. I would suppose there could be – as we deal with both of those issues, there could be another benchmark in the future.

DR. BARBIERI: Are there any strong feelings from the committee regarding the type of assessment for the next assessment of blueline tilefish? Well, I guess not then. In that case one of the things that we can add to our report is documentation with this discussion that we just had that perhaps we should consider going forward or we make a recommendation that our

discussion be made or this issue be evaluated on whether using an age-structured assessment model versus a biomass dynamics model could be more appropriate.

DR. JIAO: I personally still feel an age-structured model can continue to be used; because if you look at the population status, fisheries status historically, they still give you a different component of it. Since the Beaufort model has been developed for this species, any update or modification based on the current age-structured model shouldn't be that time consuming. From that aspect, I suggest that the age-structured model at least continue to be considered instead of just a step back using the age aggregate model.

DR. BARBIERI: Good point, Yan. Any disagreements or other opinions regarding what Yan just presented? Otherwise, I think that is a good recommendation given the fact all the issues that she brought up; and they are going to have to be weighed by the next assessment panel and I guess the Steering Committee. In this case she said efficiency is already built there with the model that has already been put together. It would be a matter of just sort of refining or adjusting for the next assessment.

MR. COLLIER: This is going to be one of those species where we're going to be pushed to get an assessment done pretty quickly, because it is right on the edge of overfished and overfishing. It is just going to be a couple more years of data if things have already gone in place, such as the ACL to prevent overfishing and different things like that. I know it was a pretty liberal ACL I believe for this species. That will have to be considered.

MR. CARMICHAEL: I think it will be interesting to see the projections based on the overfishing ABC recommendation and see the trajectory of biomass. I would expect we'll see that increasing and getting away from the limit. One thing to clarify in terms of the management, I guess, is the council did put in one minus M as a default for many stocks in Amendment 11.

It would seem that as they go through their management actions, there will be a status quo based on that definition, which says the stock is overfished. That will be a status quo would then need to be a rebuilding-type projection. Then we'll have this new recommendation if they choose to change that. This will be an alternative I guess to use the different MSST.

That will change the stock status and have a different set of projections. I expect it will be a little complicated as we move ahead, and it will take some thought on behalf of staff and management side to figure out just what is needed. But there will be some more stuff coming out for tilefish between now and the December meeting and probably some projections and different styles of projections to meet both the alternative and the status quo.

DR. BARBIERI: Sounds good. All right, I think this completes our discussion of the blueline tilefish assessment. We should be ready to move on to our next agenda item, which is the snowy grouper assessment review.

We have the same or very similar list of action items in our overview document regarding this assessment. I believe that similar to what happened to blueline tilefish, we also do not have a presentation for snowy grouper for the same reasons associated with the impacts of the government shutdown.

MR. CARMICHAEL: I think we should point out a significant difference – I'll put my SEDAR hat on for a minute – in the blueline tilefish situation and the snowy grouper situation. Blueline tilefish was a benchmark. The peer review is conducted by the peer review panel. The Chair of the peer review panel is an SSC member, and that is who we heard from on this.

I am very comfortable with that process. A very detailed presentation was given to the peer reviewers at the workshop. I think Steve gave us a great overview and summary, a model for maybe how we deal with this in the future. I think that was good. We got right to the point of dealing with the P-star and the uncertainties in the assessment, which is our charge. As Steve said, our role is not to repeat the peer review.

I think we accomplished that very well on blueline tilefish. Snowy grouper was a standard assessment; and per the SEDAR guidelines and the understanding is that you guys provide the peer review. Snowy grouper does not have the benefit of that peer review, which blueline tilefish had. I think as you consider how you move forward on snowy grouper, you should really keep that in mind. You are asked to do the peer review of that. You are not repeating SEDAR to dig into this and the uncertainties and such.

DR. BARBIERI: Excellent point, John. As we move into this discussion, I would like to request some comments from the committee regarding the way forward here or potential ways forward.

DR. CADRIN: Yes, I guess for the same reason that I suggested we should go forward with the SEDAR's review of blueline tilefish, I support what John is saying is that we don't really have that. Here we had some SSC members that were there, involved in the review. We had some continuity. We really don't here. What we had for blueline, we really don't have. We don't have people who are familiar with the issues in the assessment, the assessment itself, and the results. I wouldn't feel as comfortable with this.

DR. BARBIERI: Looking around the table, I'm seeing a few people nodding their heads. It looks like there is strong consensus. Jim, I cannot see your head nodding there, but I would like to hear your input here.

DR. BERKSON: I'm on board with what has been said.

DR. BARBIERI: Okay, in that case I think the most appropriate course of action then is thank the analytical team for sticking by with the webinar and basically we postpone review of this assessment until our next meeting in April. I think that there is no change really in stock status for snowy grouper.

I don't think there will be any major consequences regarding council actions for snowy grouper. I don't think that this will really in any way disruptive to the council. I think all of us would benefit from having a presentation for the April meeting and a more detailed discussion of the assessment. Of course, we are very familiar with the assessments that Kyle Shertzer conducts, and we have a very high level of comfort with Kyle and the rest of the Beaufort assessment team. As a matter of protocol, this will be I think the most appropriate way to go forward.

DR. CROSSON: I just continue the one observation is that Regulatory Amendment 20, which was already dealing with mutton snapper, is going to be postponed until that assessment can be

reviewed. This is going to be part of the same regulatory amendment, so I think that this is obviously – I wouldn't say fortuitous, but there is definitely a synchronicity with that.

(Remark made off the record)

DR. CROSSON: No, no, I just was pointing out that the actions that were tied to adjusting the ACL for snowy grouper if necessary are part of Regulatory Amendment 20, which already is going to be postponed because of the mutton snapper issue that we had up earlier. This all seems like it is going to work out well.

DR. BARBIERI: Absolutely, Scott, that is spot on and ties in very well with this action. I think we will ask you to take a look there at what Mike put on the board. If everybody is comfortable with the statement there – and, of course, we're going to have an opportunity to edit and beef it up and flesh it out as we work through our report.

Kyle, Erik, and all the other folks that are in Beaufort, thank you for sticking by the webinar and making yourselves available to provide input through the webinar, but I think it will serve everybody to really have this looked at in April and postponed until then.

MR. HARTIG: I'd just like to take this opportunity to thank the SSC for exercising this flexibility in this process, this extreme time period coming off this government shutdown. With Steve's leadership and explanation in the blueline, I was very comfortable with going through that assessment. I think it was very well done, and you all had a lot of good questions that were asked in that assessment.

I'm very happy with that and that is one that was in severe need of management. We'll be able to go ahead with scoping with that. We already have it scheduled. So that is a good thing, we'll get those projections and then we'll take care of what we need to take care of for the overfished status of that.

On snowies, again I appreciate you guys moving that back, because this is your role to review that assessment. I think that was a great suggestion that you did, was to be able to move that to April where you will have a presentation and will be able to review that in better form and fashion. Thank you for that flexibility and how you handled that. I am impressed at how you did move forward.

DR. BARBIERI: We're glad to hear that, Ben, thank you. Looking at our agenda, what we have on our agenda, the next item would be a presentation by Dr. Tom Carruthers from University of British Colombia, who will be presenting the data-poor assessment approaches. Considering the time, one of the things that we're thinking about is perhaps postponing the presentation and discussion; have an early lunch and postponing the presentation until after lunch, so we have more leisurely presentation and discussion.

All of us reading through the manuscript, Tom, I think it is very interesting work and I think that this will generate a lot of interest in the committee and good discussion. That would give us more time for the afternoon. Unless there is a major point of disagreement with that; I would ask that we break for lunch now and that we reconvene at 12:30.

MR. CARMICHAEL: Well, I'm thinking how long it took yesterday for everybody to get away and get lunch; you might want to make it 12:45. It took a solid hour and a half yesterday for people to get done.

DR. BARBIERI: Yes, that is true. We have more flexibility today with the timing and considering some of the other items that we have planned for today. Let's go ahead with 12:45. We'll reconvene then for Tom's presentation and follow-up discussion.

The Scientific and Statistical Committee of the South Atlantic Fishery Management Council reconvened in the Crowne Plaza Hotel, North Charleston, South Carolina, Wednesday afternoon, October 23, 2013, and was called to order at 12:45 o'clock p.m. by Chairman Luiz Barbieri.

DR. BARBIERI: Welcome back to the afternoon session of the SSC meeting and the much anticipated presentation and discussion that we're going to have. We have here actually Tom Carruthers and Alec MacCall. I think Tom is going to give the presentation or are you guys going to be working in tandem?

DR. CARRUTHERS: It will be a tandem effort.

DR. BARBIERI: That is very entertaining. Much appreciated; afternoons tend to feel a little heavier, so having this kind of animation is always greatly appreciated.

DR. CARRUTHERS: Thank you very much, Mr. Chairman. It is a great pleasure to present here in front of this committee. A big thanks to John for finding a space in the agenda for us; we much appreciate that. As you all well know, here in the U.S. Fishery System the majority of species don't have sufficient data to conduct a conventional stock assessment.

This problem both here and worldwide has led to the development of all these data-limited methods. To a certain extent it is not hard to think qualitatively about how well one method might do over another; but as you are going to discover in this presentation, there is a great value to quantitative information.

How much better than the status quo could something do? How much worse than another method that has other data could a method do? Quantitative results and performance measures and things like that allow you to make strategic decisions about how you're going to assess a stock. That can be very valuable.

Our evaluation focused primarily on the U.S. Fisheries Management System. We looked at data-limited methods that have been proposed here, and we also looked at some other data-limited methods that have been in the peer review literature. We wanted to see not only how well they did, but also kind of inverse of that; what is the value of different sources of information? We also wanted to reveal potential tradeoffs between the different objectives you might have in a management of a fishery resource.

We chose to do this using management strategy evaluation. Very simply, this is a process whereby you kind of invent a world consistent with what you think already exists in that world; a fishery, a population, and you then use this thing, this operating model to generate the kinds of

data that you have in a data-limited scenario; catch data, any kind of depletion information for example.

Then what you do is you say, well, we know in a data-poor situation we don't really know those things terribly well, so you simulate imperfect information in those things. From that you can go ahead and use your OFL-setting methods, which are then subject to an ABC Control Rule and then you have your ACL, and the whole thing goes on and on and on for a certain number of years.

What happens is this thing is iterative. It goes forward in time and you basically see how well these different OFL and ABC rules do under a variety of different circumstances and hope to learn from that. What you need to know; you need the operating models, so you would need some credible realization of a real fishery, both the population dynamics and the fishing dynamics.

For that we used real stock assessments so we empirically derived biological parameters from real stock assessments. Then you need the data-limited methods. Those things have been described in the peer review literature in the gray that suggests that's not too hard. The third point is the tricky one.

You've got to say how well you don't know things you know that you don't know, which is hard enough to say and then you actually have to do it. I would draw everyone's attention to that box, because the imperfect information is key to this. Then you have to decide when something is good and when it is bad. You need to know what your performance metrics are.

Okay, so we looked briefly at six different life history types. We sampled error in all these things; but if you have to summarize them in three core parameters, you might choose M, steepness and the kind of inter-annual variation in recruitment. These are not to be seen as real assessments. This isn't really Atlantic mackerel or butterfish or something.

This is a life history type. These are the parameters that would control the dynamics under various different depletions and areas. These are the ones we looked at. We not only had variation in the life history types, these six categories. but we also put error in all these different component parameters.

There were many more than the three that are here, but these are pretty good at summarizing the difference. We can come back to this maybe. Of the data-limited methods that we tested, I am going to put the primary ones on the board here. One of them was depletion-based stock-reduction analysis. This is a method that was developed by E.J. Dick and Alec. Essentially what DB-SRA is, it is kind of like a backwards delay difference model. What it does is you specify distribution for the current stock depletion.

When I say depletion, I mean where we are at today relative to where we were, so that it is a percentage; so 0.1 depletion is 10 percent of unfished biomass. Low depletion actually means low stock level. I just want to be clear about that. You define that distribution and then you work out what the B-0 had to be given the catches that you got to get you there, and then you can work out what your OFL is from there. It is kind of backwards, and it is iterative.

You take many different samples and you can get a stochastic distribution on your OFL, which you can then apply an ABC Control Rule to. The other thing we looked at was another method of Alec's, which is DC-AC, depletion-corrected average catch. This is kind of like an MSY proxy method.

What it does is it says a certain amount of the historical catches that you observe can be attributed to a windfall, a kind of reduction in biomass towards productive levels. It accounts for that. It kind of gives you pretty much the same thing as an MSY-based approach, a sustainable yield.

The third method is something that has been applied in the North Pacific Fisheries Management Council for dealing with stock complexes. It is an Fmsy M ratio. This all stems from Gulland's work. This says that if you know what M is, you can assume a fixed ratio of Fmsy, like half of M or something like that. If you've got a current estimate of abundance, voila, you have your OFL, so there is that approach.

Note that is quite different from the first two, because it uses information that you have today as opposed to depletion, which is where you are now compared to where you were. It is slightly different in that regard. The fourth thing here is DACS. This is an invented name for the purpose of this paper, but this is actually the ORCS ABC Control Rule. This is the one that makes your OFL double, median catch or half median catch; depending on what you think the current stock level is. It was used as a control in ORCS.

We assumed a new depletion in the same way you do it for DB-SRA and DC-AC, and we just allowed you to multiply a catch recommendation accordingly. Last of all, of course, there is a whole bunch of static methods that just say we're going to use a percentile of catches. These are the types of methods we looked at.

I will go through this quickly, but we had to be up front and honest about the fact we don't know some of these variables like M. This is a way of representing how we simulated not knowing those things, the imperfect information. A bias in M means a CV of 0.5, and the bias in M means you could easily have sampled an M that was half or double the real M; and you assume that for all of the projections going forward. That's what I mean by bias.

It was a consistent bias up or down on the real M throughout the whole of the projection. We did the same thing for all of the core inputs to these data limited methods. Some of them have imprecision as well. These are things that you can see multiple times, like depletion, for example.

It could be biased over the whole time period – you could say, oh, it is higher than it should be – and also imprecise. That could be highly variable around that bias. By doing both things, we can reveal the importance of a bias versus a precise estimate. We did it for all of these inputs. That was the core thing. Then in terms of the performance, we looked at the National Standard 1 and we said, hey, let's just stick to these two things for this presentation, but in the paper we looked at other things.

In this presentation we looked at two primary performance metrics, the probability of overfishing and the yield. That is the way that we looked at how well these things are going to do. But as I

say, in the full paper you've got that more detail there. Here are some results. Not to overwhelm you, because it is a bit of a complicated plot in some ways, let's just start with the upper left-hand plot.

On the X axis you've got the probability of overfishing; and on the Y axis you've got long-term yield. The probability of overfishing is just a fraction of runs in the future where F just happened to be higher than FMSY. On the Y axis you've got a yield metric, which is standardized. It compares how well the method performed to some theoretical maximum level, which you would get if you were omniscient and knew exactly how to manage the resource, something that is unattainable but is useful for scaling purposes.

We split down the methods into these groups; blue, red, and green. The blue method is dynamic; they dynamically account for depletion. The static approach is done. You can see two new ones, DC-AC 40 and DB-SRA 40. Those are the top two red ones. They just assume that depletion is 40 percent of unsearched.

In this top left-hand plot, what we can see is all of the static approaches. All of them lead to very high probabilities of overfishing and low yield. They are all clumped down there in the lower right-hand corner. DC-AC is clumped with them – that is that blue mark just above the red clump – indicating what we would expect to see, which is if you use an MSY proxy at low stock levels – I'm sorry I should have drawn attention to that.

This upper left-hand plot is for biomasses below 50 percent Bmsy. This is the low stock levels. DC-AC does similarly poorly, because it is an MSY. It is giving catch recommendations at productive stock sizes in an instance where the stock is not at a productive stock size. You get high probabilities here of overfishing and relatively low yield.

Somewhere in the middle is DACS; that is the ORCS Control Rule. Then right up in the top left-hand side of this plot you can see DB-SRA and the Fmsy M methods; the only methods that could be described as performing relatively well at low stock sizes. They dynamically account for depletion. Get a look at this, not even a very good depletion estimate.

Remember, we're simulating lots of bias and problems for these data. You're seeing much better performance of those methods, so a big divergence at this level of stock size between static and dynamic approaches. The green things are reference approaches. One of these is a delay difference model. It is not getting good yield.

You can see low probabilities of overfishing but not good yields. The other ones, current effort and current catch are kind of what we could currently do like a status quo kind of method, and they do similarly well to the static approaches. Now things change a lot. When you move over to the top right-hand plot, suddenly things are changed. Notice that the X axis has changed in this case. There is a kind of dotted vertical and horizontal line, and that has moved.

This is so that you can still read the text. But now everything is doing much better, and the methods are now mixed, showing that actually DB-SRA 40, for example, and DC-AC 40 that didn't do very well in the low stock size example; now that we're between half of Bmsy and Bmsy seemed to have performed reasonably well.

It just shows you there is a big difference in this transition to simulations at like more productive stock sizes. This is continued for the lower two plots. If I was to try and represent where the lower two plots exist, I might do this. That box is actually where those lower two plots are, so all the points are in a reasonably good space for those two plots.

We can just see all of our problems in management, all of our dexterity that we need in knowledge comes at these critical stock levels. Not that we would be surprised about this, but this is just confirming that. We may want to come back to these result slides. This was all done for the mackerel life history type.

If we look at something that might also be applicable to the South Atlantic's snapper, we can see some differences; but the general pattern is there again of the static approaches, generally doing badly at lower stock sizes and then the performance becoming mixed at more productive stock sizes. The only difference being here is because snapper seems to have – while it does have a higher simulated steepness; DB-SRA 40 and DC-AC 40 seem to perform a bit better at the low stock sizes here with lower probabilities of overfishing.

A really interesting plot that you can produce here is something like this. The problem with these aggregate performance methods, as you've just seen them, is that you don't know how badly that breaks down under the assumptions of imperfect information. Here you've got it. The green line is the unbiased condition, and the red slope shows you how the mean probability of overfishing changes for DB-SRA in this case with the different biases in depletion on the X axis.

You can see it is really steep, meaning that probability of overfishing is very sensitive to bias in depletion. Now if you were to break up the X axis into chunks of that distribution and evaluate the mean; that would have a high variability, a high standard deviation, indicating that there was high sensitivity in the performance to that input; i.e., a high value of information in this particular dimension.

To summarize that, you can produce a table. Let's just start out here. This is the median catch performance of mackerel, and all we've got is observation error in this case. That is the columns; a median catch is the row. For this method we can show that for yield there was very little variability in the yield that you would get from the method over the full range of observation error, like this Factor 1, which means a very small amount.

As you fill out this table, you realize down the columns for the different methods there are very different sensitivities. The methods that do well like DB-SRA are really sensitive to the very things that mean they perform well; in this case bias and depletion. That 22 tells you the DB-SRA and depth bias in the second column; that tells you that it is bias and depletion that is determining that performance; that it is highly vulnerable to that.

Interestingly that CV, which is the error in depletion, wasn't that important. This is interesting, because when you think about depletion it implies that if you had a well-designed survey or well-defined way of arriving at depletion estimate; the actual sampling effort when you are there wouldn't matter so much. You could be quite imprecise between years as long as you weren't consistently biased over time.

Again, this might be obvious to some people, but this really highlights it where the value of information is. Of course, for the Fmsy, the M method you see the same thing. B bias is the bias in current biomass, absolute biomass; tons out there. You can see when you don't know that very well, it is biased over time. You end up with big problems; but it is very insensitive to the CV in that biomass.

It didn't really matter much what life history you looked at. For snapper it is the same thing. You get the big sensitivities for the methods that perform the best, because that is kind of the essence of their ability, as it were, is those inputs. This is one way that you can summarize value of information, what information we most need to gather in order to make a method work.

This is an interesting plot. Try as best you can to ignore those ugly dots in the middle of it. Those are sort of the average performance of the different methods, so just ignore that. The yellow area is a place of high density. This is where most of the stimulations ended up in terms of on the X axis depletion and on the Y axis yield.

When we think as fisheries scientists about stock productivity, we tend to think of this production curve. We have this kind of ingrained in our minds kind of indelibly. It is something like this, isn't it? It is something where you say we've got lots of production at moderate stock sizes; but when you create a real management system with real problems in it and not particularly good data, you see how far from the real production curve you are.

In terms of trying to get to those maximum catches, which are represented by the hundred on the Y axis, you are nowhere near it. What is also interesting is how precarious management is at levels much lower than Bmsy. It just shows you nothing really ended up there. It either collapsed the stock or it got you back to some moderate stock level.

It is important to acknowledge this, because it is going to tie into something I am about to say later about precautionary buffers and things. But this kind of ties into the work of Ray Hilborn and others when they've talked about pretty good yield and things like that. There is a flat area in there at moderate stock sizes that gives you great opportunity for yields without a lot of cost, as it were.

Anyway, it was interesting to see that plot, I thought. It is always good when you're presenting methods like this, or an MSE framework, to try and make it relevant to the body that you are presenting to. This council is considering the use of the ORCS approach for unassessed stocks. The interpretation in Amendment 29 is that you are going to look at maximum catches as the catch statistic; and you are going to undertake some kind of upward scalar, depending on what the risk of overexploitation is; and then there will be an ABC Control Rule applied to downscale that.

All those different scalars lead to a range of different maximum catch multipliers. We thought why not; let's just do that so you can see what that looks like. You can see what actually happens. When biomass is much lower than 50 percent Bmsy, it doesn't matter what maximum catch rule you choose. There really isn't much difference. It leads to very high probabilities of overfishing and very low long-term yield, relative yield.

What is interesting is that this kind of parabola of different maximum catch rules emerges and it starts to drag itself over the plot as you move to more productive stock sizes. Between 50 percent Bmsy and Bmsy, you can start to see 50 percent maximum catch stretching up towards areas which aren't as badly overfished and have longer long-term yield. Gradually you work your way through these plots and you can see it sort of joins up.

What may be probably the most important point behind this is that as described by Amendment 29 you are likely to use higher catch scalars as you move down those boxes, probably keeping yourself in that lower quadrant where you don't want to be, so that is kind of something that is at least worth considering here.

You can see that mean catch rules seem to do a bit better. Even across the different stock sizes, they buy you time at the very least in the low biomass plot; and in other plots they give you reasonably good performance, these mean catch rules. To a certain extent, they are a bit more consistent with the Restrepo approach from '98, and that is the original ORCS method as a catch statistic.

You can see we've got this green reference approach; just a scan of the thing. I'm trying to think if there is another important thing to draw from this. If you were to overlay some results from the previous work, you can see median 10 and the third highest catch fitting in there as well, in a place you might expect.

There is one thing I would say is we know maximum catch as a catch statistic is likely in a data-limited fishery to be quite erratic. These are high observation error fisheries. You are likely to see one of high catches, and perhaps that is what you're seeing here. I thought it was relevant to produce this plot, anyway. I thought you might find that interesting.

What did we conclude? I'm going to start backwards. Maximum catch rules appear to be relatively problematic, especially at low stock sizes. Average catch rules did a little bit better. There are lots of statistical reasons why means should be expected to have slightly better properties or much better properties than maximum catch, and they seem to do a little better.

You could postulate that using some kind of average catch rule as an interim would probably buy you time whilst you could gather other data. We've shown that those other data, the types of things you're talking about, dynamic depletion and things like that, things that might enable you to, for example, apply DACS has a very high value and also can be expected to outperform both average catch rules and maximum catch rules.

The truly dynamic methods, the DB-SRA and Fmsy of M methods were the only things that could get you out of a low stock level and put a very high value of information over depletion. Again this might be stating the obvious to some, but we've shown quantitatively what that value is, which I think is at least something.

Then a second set of conclusions; there is this idea that we've got to be pragmatic. You can't just be hopeless. In plenty of fisheries we might not be able to apply some of these approaches. What would work in an interim? It appears that you could use something like a mean catch rule or a DACS approach to get you through a time when you might have; for example, a future 10-

year period where you might be able to collect depletion information to help you with something else, for example, DCAC or something similar.

As I say, moderate stock levels DC-AC and DB-SRA, both the 40 percent ones and the regular ones perform reasonably well, and that was the same across methods. Moderate stock sizes seem to do quite well except for the maximum catch rules. It was interesting to see the tradeoff in precision and bias. Again, some stock assessment scientists would say that was obvious; but it was really bias that was important in examining the performance and not uncertainty.

You could have a very low survey effort as long as you were careful about the design of that survey. Maybe that is obvious. The interesting thing – and I think Alec is going to expand on this – is that it may not be the case that in all circumstances the data-limited assignment is justified or maybe there are other data available.

It is really worth pursuing, because this announces above all that if you can find somewhere some information about depletion or abundance, no matter how bad – and we simulated really bad depletion and abundance data – it can give you really large benefit. It is important to really know that you don't have those data out there and to be careful about trying to find some if you can.

Lastly, there is something to be said for approaches that are dynamic but based on expert judgment purely because it is transparent. Say what you want about expert judgment and trying to characterize it; at least we know how it got there. I would say that in reviewing these documents and things, I found that to be something that jumped out.

In the real document, not this one, you will see that every single time we applied a method, we looked at different buffers. Because of that big messy plot you saw with the yellow density on the red, that one, whenever we show the buffer that was a little bit less, we didn't see massive changes in yield but always saw big changes in probability of overfishing.

Sometimes you got better yield as well. It was one of these things that because you are dealing with such bad data and things are so uncertain; precautionary buffers were often beneficial in ways in which you didn't necessarily expect like high yield, because you are away from those precarious stock levels more often.

That is the third point as well, and then the fourth one here; quite surprisingly, because we always like to think of ourselves as data rich being better and more data is better; is it really true? It is something to be brought in for later and after and things, but this delay difference model has been compared to assessments and got similar results.

This is something I tested before and it did not perform well. The reason it didn't perform well was because it assumed that things like fishing efficiency hadn't change over time, productivity hadn't changed over time, and they did change over time, and not by huge amounts either. But that was enough for something that relied on this historical assumption to fall apart quite badly, compared to a simpler approach.

I think fisheries going forward are going to realize that we might have been kidding ourselves in some instances for a long time about some of these methods. But, anyways, that is just a little

thing that came out of it. Okay, the original simulation was actually spatial. It was this really complicated spatial model, and the results you saw are from that model; but they were really similar when we didn't put in the spatial stuff.

Spatial effects weren't really important in these particular fisheries. They might be a lot more important in fisheries where there are refuges and other things like that or spatial targeting or something like that; but in this instance they weren't. That basically summarizes my part of this. I've got to credit two people for their input on this, One was Chris Legault who reviewed the document and gave me tons of feedback and was really essential for this paper and this presentation.

The other is Jim Berkson, who came into this at a very early stage and just had too many work commitments I think to give it what he would like to have maybe, but he was absolutely instrumental, so a big thanks to Jim and a big thanks to Chris. I'm now going to hand you over to Alec. He has obviously had a huge amount of stock assessment experience and has been developing these data-limited methods on the west coast and maybe can give you a perspective on it. I don't know.

DR. BARBIERI: Thank you so much, Tom. This was really, really entertaining; I mean a lot of fun for this afternoon. One thing is I wonder, Alec, if it would be better for us to pause over here and have the committee ask a few questions about this first part or if you think that it goes kind of seamlessly into this other one and there is more.

DR. MacCALL: It is only three slides.

DR. BARBIERI: There we go; go ahead, then.

DR. MacCALL: All of that was harvesting fish on the computer, and so we thought it might be interesting to see what happens when we really try to do some of these things. On the other hand, since we're talking about the west coast, that might as well be on the computer to most of you people on the east coast.

We really did this. This was for west coast groundfish. We have about 90 species in that FMP. About one-third of those stocks had been assessed. As you recall back around 2011, we had to come up with ACLs for everything. We were faced with about 60 data-poor stocks needing ACLs, actually a lot more than 60 because many of those stocks were broken into two areas and that sort of thing.

We developed this tool called DB-SRA 40 in this presentation to address the need. All we had pretty much was the catch series to put into this, and we took a best guess at what early historical catches were, but we just put it together however we could. We had just a few parameters and then things like that to guess at as well. We treated them as very imprecise.

We managed to develop those ACLs using this DB-SRA approach in a matter of about two months for all of them. The interesting situation was that the council, the SSC, nobody knew we were doing it. Therefore, we got way far along before they could say anything about how it should be done. It was very handy. The SSC was able to review a lot of this, but the formal STAR Panel process only caught up with it a little bit later.

The trick though was to assume a plausible range of population parameters and assume that every stock is at its target abundance, which on the west coast is defined as 40 percent of unfished. We'll assume the stock is at its target abundance and say what does this catch series mean in that case?

What we wanted to know is whether the current catches were above or below what would be an Fmsy level, which was the basis of our ACL. We actually did 55 of these, I think, and only three showed possible overfishing. Of those, those three were assessed this year, because naturally they were the ones people were most concerned about. One turned out to be okay, and that was the worse one of them; rougheye rockfish, a species that lives to 205 years.

I'm not sure whether I can trust that assessment, but they said it was okay so good enough. To me anything that lives 205 years is in trouble already. The other two turned out to be right at the borderline. In all these cases management is addressing the results and it is not finished yet partly because of the shutdown.

Every indication is that there is going to be really minimal fishery disruption due to addressing the status of these stocks. Unlike a lot of stock assessment methods, we didn't wind up having to tell management everything is in the toilet, but most of these things were in great shape. Like I said, the method got way ahead of the review process.

We developed those ACLs, got them put in place and then reviewed them afterward. The SSC conditionally accepted them and we put together a STAR Panel in 2011 and went through it. Now both STAR and SEDAR are very poorly set up to review methodologies. They are really set up to review assessments.

It was a new idea and it turned out to be more fun than a usual review since we didn't have anything at the end that we had to stand behind. It was really pretty good. We tested the DB-SRA against 30 stock assessments that we actually had done assessments for as our test bed. It worked pretty well.

We also introduced a new Bayesian version of it, which got reviewed in a 2012 methodological review. The conclusion was that these were suitable for data-moderate stocks. The council approved applying these new methods to six benchmark stock assessments this year. We did those. That really worked out really well.

In sort of lessons learned; it seems to me the precedent set by conventional data-rich methods has turned out to be a handicap. It generates inappropriate expectations, sort of a false sense of what you can really do out there. When we realized that the majority stocks we haven't assessed at all, because we can't do these things; it is consistent with that.

Those data-rich methods really pose inappropriate data requirements for the problems we're facing. We just don't have the kind of data to feed those data-rich assessments. Worse of all, in my opinion the data-rich methodologies have tended to prevent us from thinking outside the box. There are very few things I feel I have a benefit from being older now.

The one thing in fisheries is that I learned my stock assessment in the 1970's. Everything was data poor back then. It has naturally been sort of easy for me to put myself back into the 1970's

like we all tend to do when we get older and really just sort of rethink what we're trying to do from what we would have done back then.

Things like DC-AC I think would have appeared 30 years ago if people hadn't just jumped over to computers and just completely changed the way they did things. There has just been sort of a 30-year gap, and now we're getting back into what happened at the end of 1970's as far as I'm concerned. That turns out to be outside the box in modern thinking, anyway. That is sort of strange.

But once we showed that these alternative approaches exist, like DB-SRA and so on, suddenly the conventional approaches loosened up. Jason Cope, for example, came up with his Simple Stock Synthesis, which took stock synthesis, a data-rich method, and adapted it to a very data-poor application, and it turns out it works pretty well, but it is a little different way of using it.

He had to call it thousands of times with a thousand different data sets, not the way you usually use it. Calling it once is bad enough. Obviously, not too many people have used synthesis. It is a good program but it sure is a headache. Finally, I just want to point out that acceptance of new ideas is slow, and there is sort of a classic pattern of response. I don't know who first described this, but it really, really is true. Every time you come up with a new idea, the first thing that happens is people just dismiss it. They won't even listen to it.

After a while they have to listen to it because they keep hearing it, and then they start resisting it. Finally there is this sudden breakthrough at which point people say, oh, that was obvious, we do it all the time, what is the big deal? I sort of feel some of this data-poor stuff is going through that process.

Fortunately, I am starting to see that obvious response, which is really the breakthrough we're looking for. These things really are simpler than you might have thought. They're doable. They just don't look quite like what the old stuff was. As a final conclusion, we almost always can do more than we thought we could.

In every case I've ever done, every stock assessment case, there is more and better data than I thought there was at the beginning of that process. My guess is everybody who has done a stock assessment would agree with that. There is always something more than you realized was there. Whether it is any good, that is a different problem, but there is a lot of stuff out there to work with.

The other thing is that we don't want to be completely tied up by the methods that are available, especially the data-rich methods. There is a lot of room to develop methods that address whatever kind of data you have to work with, and that is all we can ever hope for. If we wait to get the data, we aren't going to do anything. We can develop methods more easily than we can get data. That is all I have to say. Then we had one more slide that is David's, I think.

MR. NEWMAN: I just wanted to add this at the end before the discussion. Clay and Alec, with the support of the Moore Foundation, which supported this work as well, are co-hosting a data-limited methods workshop in Miami in early 2014. More information will be distributed on that as the agenda is developed. But a part of the purpose of it, the key part is to actually apply some of these methods using a data tool that is based on the same kind of framework coded in R that

was used for the management strategy evaluation and to apply it to some real stocks as case studies.

Not to say that this is an actual stock assessment process for which the results will be used or suggested for use, but just to show that the methods work or how they work or where they don't work, and to get people familiar with using some of the methods. More information on that to follow; I just wanted to throw that out there.

DR. BARBIERI: Wonderful! Does that complete the presentation? Before I open the floor for questions and comments and discussion points, I want to thank Tom and Alec and Dave for getting this organized. I think I can speak for the committee as a whole in saying that this is something that we all recognize was badly needed.

This performance evaluation is something that we've been asking for a while, and I think the opportunity to have this in front of us is just great. We appreciate the whole synergies that came together to generate this work, and you guys actually not just pursuing it and completing the manuscript, but actually taking the time to come here and present to the committee and give us the opportunity to discuss and interact with you in this. This I think is great.

DR. CARRUTHERS: Well, it is a pleasure and thank you very much for accommodating us.

DR. BARBIERI: Second is as we go through the report or the paper, it is definitely fun, but kind of hard to go through. It is very dense. You keep digging and it is still hard and you dig some more. I think that you guys did a phenomenal job giving this presentation today, because you really dissected the real relevant points and you made it easy to understand, I think, in a way, so I appreciate that. With that, I will open the floor for comments and questions. Jim, we will not forget about you.

DR. CADRIN: I've got a few questions. One is will the simulations be expanded? I think you have a good range of life histories there; but looking at the steepness values, they all look moderate to low, 0.4 to 0.65. Is there any intention to broaden that to maybe some higher steepness stocks?

DR. CARRUTHERS: Well, this is the great opportunity of the workshop. What we're going to do is I'm going to make the code publicly available and people can specify their own operating models. They are in ranges for things like steepness. Where I would like to do this again, I would like to look at other methods.

We know, for example, that catch curves, while it is problematic, may work better than the static approach. I want to broaden this to other methods and maybe do another paper; also based on if you remember harvest control protocols like management procedures that are algorithmic as opposed to based on an assessment OFL and ABC.

They just state what the next catch is going to be as a function of previous or very recent catch rates, things like that. I want to do this again in a more detailed way to include other life histories and other methods so this will happen. The big goal here was just to get the thing published so people could see the idea. Then the next paper can be smaller, but there is and it will be available to you and others to make up simulations if they would like to.

DR. CADRIN: Great, thanks. The next is really just an observation in the way you laid out the data requirements for each method. Really age at 50 percent maturity is the only additional information you need for DB-SRA over DC-AC.

DR. CARRUTHERS: Sorry, I'm going to just jump in there right away. There is quite a big difference, and I'm supposed to say this; and Alec didn't punch me in the leg, which he could have done. He is very patient and tolerant. DC-AC actually has quite different data requirements in one sense. It can operate over small fractions of a depletion level.

You could have 10 years of catches at a time when the stock had already been quite depleted and have tracked depletion in that time and still get the DC-AC, so there is actually a bigger difference between that data refinement.

DR. CADRIN: Really in DB-SRA the entire catch series should be the data requirement there. That is pretty substantial in some fisheries to get that; impossible in some fisheries.

DR. MacCALL: A guess is all you need. I'm serious; a good guess is all you need.

DR. CADRIN: Okay.

DR. CARRUTHERS: When we talk about the catch for DC-AC, it can just be the average catch is maybe what Alec is referring to. It can just be a guess at the average catch. It doesn't have to be necessarily the series. That is the other difference as well.

DR. CADRIN: The last is really just more procedural. This is largely a different way of doing business than say SEDAR where you have a data workshop, an assessment workshop and a review workshop. All of those three would have to be touched on, but the relative emphasis is really different.

It is largely estimating catch and the catch series and life history parameters, which we would typically do in the data workshop in a life history subgroup. The modeling, even though there is some Monte Carlo estimation of variance in some of these things, it is a little bit statistics light and biology heavy. It might change the way we operate to really do this.

I wonder if multispecies applications, applying this to multiple species in the same iteration is helpful. I'll draw on Alec's experience from this from the west coast, especially life history groups. Is there efficiency of putting this through and applying it to the snapper grouper complex as a whole rather than one by one?

DR. MacCALL: Well, I hate complexes. What I think the better thing to do is you usually could break out the catches more or less out of a complex at least over some period and then compare the performance of different catch series using a common F series to all of them. It is something I'm working on right now, borrowing F histories as being your index.

DR. CADRIN: Let me clarify. I wasn't saying having a DB-SRA as single analysis of a complex. I was saying do all the DB-SRA applications to similar stocks in the same workshop.

DR. MacCALL: Okay, we just went through doing that. We did I think 11 or 12 assessments in one review. Everybody said not again; it was too many. They were hoping to just get a whole bunch done. It turned out that it still required a fair amount of typical review back and forth, what ifs and that sort of thing.

I think you could probably do four to five maybe, but I wouldn't go beyond about that level. You just start running out of time to get done what you need to do; but you can do a few, not just one. I wouldn't do one; do a few but not a lot.

DR. BELCHER: It is only because we've kind of wrestled with this as we've talked about adopting the ORCS at our Tier 4; we currently have our third tier as a DC-AC approach in which we say that we basically get a provisional ABC directly, but we don't have an estimate of OFL. But yet under the ORCS approach, which we have even less information for, we actually have an OFL value.

Since you are the author for DC-AC, is there a suggestion for what OFL should be derived from? I guess that is the question we have, because we did go through a little bit of that debate at our last meeting about the fact that with catch only we're actually willing to give an OFL estimate, but yet we have less information from the previous tier, which we say we can't give an OFL.

DR. MacCALL: That is pretty similar to the dilemma on the west coast where all of our tiers were based on data-rich assessments and sort of assumed certain kinds of input. These methods don't quite fit into that same logic. But that's okay; it's not too bad. The bigger problem is how to get some of the values that you need to proceed with your management.

That OFL thing, I think as long as the stock isn't too depleted, it is not in that bad quadrant that Tom showed, you can get away with just about anything, any way you want to treat it. Try to just define an OFL using what you know and sort of work the problem backwards so that management has the things it needs to do what needs to be done.

Often the calculations to get that done are a little bit backwards, if you know what I mean. It is reverse engineering. I think as long as the stock is in that reasonably healthy zone, there is almost no risk in doing it that way. The only difficulty is when you are depleted. Tom and I are still struggling with what do you do then because everything fails? We're trying to come up with some alternative treatments. We'll keep you posted is all I can say. We don't know yet, but we're trying to think what do you do down there? The rest of those cases, it is pretty safe no matter what you do.

DR. BARBIERI: Alec, to just expand a little bit on that, one of the things that we have discussed here is the fact that some of the other regions have experimented, not done as extensive a simulation process, and they may see nothing to that extent, but there was some effort to actually evaluate the performance of DC-AC against fully assessed methods.

I am thinking about red crab in New England I guess, remember that? I am trying to remember what the other ones were – anyway, one way or the other is I think that the overall conclusion was that DC-AC was approximating better, giving a better estimate of what would be ABC than OFL. Based on that a call was made to say, well, since this would be a better estimator for ABC, we'll just go with that and don't worry too much about getting OFL that way. Do you agree with

that? That was my perception from reading some reports. Steve Ralston sent me some stuff. This was a couple, maybe three years ago and those kinds of thing.

DR. MacCALL: I think that is true; but in New England with red crab, the followup was a little disturbing. I don't know if you know what happened. We did a DC-AC, but then they cleverly said, well, gosh, it looks like DC-AC tends to fall below the peak of that production curve, like that colorful plot that Tom showed.

They said, "How much below does it fall?" I said, "Well, if you sample across that curve, it might tend to run 0.7 to the peak." They reverse engineered it and divided everything by 0.7 in order to get the MSY from DC-AC. Sure, they came up with a nice big ACL, but it lost all of its precautionary properties in doing that. I never sent a comment to them, but I was a little astounded that they took something really fundamentally precautionary and eliminated all of the precaution.

DR. BARBIERI: Steve, do you have an extra comment on that?

DR. CADRIN: Building on the question about where ABC should be relative to DC-AC and the red crab, if you would go to Slide 15 that Tom had showed, your bright yellow line is kind of where they came up with the red crab simulations of where DC-AC was relative to MSY. That is why the New England SSC felt that was an appropriate ABC but not an OFL.

They felt that had buffer enough that you don't need to buffer below the yellow band there. But even building on that experience, in doing those simulations it became obvious to me that we have what we need for DB-SRA. Why stick with DC-AC? If you can test it to this extent, then take a step up the ladder.

DR. BERKSON: Luiz can I ask a question to that point? Gentlemen, sorry I can't be there but that was an excellent presentation. Just a quick question; I've got a longer question, but I'll save that for later. Alec, don't you always stress that DC-AC provides an estimate of sustainable yield but not maximum sustainable yield? Tom kept saying that it is an MSY proxy, and that just struck me as funny.

DR. MacCALL: I didn't punch him for that one either. Yes, that is the thing. The way Tom used it in the MSE; it comes closer to being an MSY proxy, but in general it is just a sustainable yield. It is not necessarily maximum and it has nothing in it that tends toward a maximum. But at the same time, the nice property is we know that if you set a really small yield you know it is sustainable. The nice thing about DC-AC is it is a pretty big yield that we think is sustainable. That is all I can say. Tom can interpret it however he wants.

DR. CARRUTHERS: Yes, I think that is fair enough. The reason I used that is because – okay, so it is not correct and I sat next to the guy who actually made it up and designed this method so I have to be careful. What people don't realize about DC-AC is that it does not tend to zero as depletion tends to zero like an OFL would. It is not meant to decline. Its properties are similar to a measure of yield of productive stock size. That is why I use MSY proxy.

A sustainable yield of productive stock size is what I would say, but it is a mouthful. My point is, you can get really close to a stock that has almost entirely collapsed and it will still give you

this adjusted catch that is way above the OFL. That is the only reason I say it. It is just to try and separate these two ideas out. But Alec is right and I am wrong; I'll concede that.

DR. MacCALL: At the New England Workshop that Luiz mentioned where we did the red crab, we applied DC-AC to redfish in New England. We just took all of the catches, and the depletion was 100 percent over that time period. Essentially they started out with an unfished fishery, and at the end they had nothing close enough.

DC-AC came out remarkably close to the stock assessments estimated MSY. The problem is that by the time you did that calculation, there weren't any left. DC-AC is very much a hindsight tool. This is what you could have done if you had known. It is not very good for playing catch-up when you are already deep in the hole.

MR. CARMICHAEL: I thought it was an interesting comment in the conclusions when you said that the lower buffer led to lower yields because that is kind of counterintuitive. You think lower buffer means there is a higher catch that is being allowed and you are getting lower yields. Is that because essentially what you do is end up driving the populations down so it is the allowable yield; but in the simulations you can't realize that yield over the populations' course.

DR. CARRUTHERS: What we found was in many cases when you had a buffer that reduced your OFL, the ABC was substantially below the OFL, we found that you could get higher long-term yield. That is because of the fact you are playing it out over many years. What happens is that in a certain fraction of these simulations they wander into a sort of unstable zone.

They can either crash and then need rebuilding or vice versa. By being precautionary, you avoid that. This is all about expectation. It is about the long-run expectation of yield as opposed to what you are going to get next year. You tend to think of buffers in what you're going to get next year. But over the long run, that process has got inherent risks and we try to express those. That is what it is about. It can be counterintuitive that way.

MR. CARMICHAEL: I think therein lies one of the challenges; because when we sit here and then the next level your pressure comes from the people who feel the pain over the next year and have the real economic consequences of the next year; and though we all know that over the long term, yes, the precautionary pays off more, it is hard to get from here to there in terms of the people who feel the pain right now. I think that is why there is such pressure to have higher immediate limits, knowing that in the face of these uncertainties there is a fair amount of risk with that.

DR. MacCALL: If I could make a couple of comments on how you might approach these problems. The first is if the council wants to take a fairly aggressive approach at maintaining a fishery, I think it is really important to try to get some kind of abundance monitoring under way to support that.

To be aggressive without monitoring is dangerous. But with monitoring, chances are you can find out if there is a problem in time to make sure it doesn't get you. Just try to get something going. The other thing is that instead of just using a simple one size fits all ABC definition, I really think you might be better off using a moving average of three to five years. If you want to

make sure you can accommodate those high years, if they sort of happen randomly, every now and then you get a high catch, you can keep your moving average going.

You can put a lid on the top of the high catch, but it can be way up there so it just rarely gets invoked; but the moving average keeps everything under control in a way that doesn't hardly ever constrain the fishery. I recommend you think about it.

DR. BARBIERI: Well, to some extent I couldn't resist, Alec – I hope that Jim will jump in and Steve is right there – but the issue of the ORCS approach and the recommended procedural set of steps there; it is really on a note that I took here in terms of lessons learned. I was trying to reconcile some assessment kind of needs with management realities.

Reconciling those things can sometimes be very problematic. But the idea – and it is somewhat counterintuitive for folks who are trying to interpret National Standard Guidelines in that very sort of explicit way – that we are allowing this higher level of landings for a species that we have a fairly high degree – we know that we have a fairly high degree of uncertainty. Trying to reconcile those two goals, the idea is that if you put that cap and you know that from that dome area you are operating somewhere around the area; even if you get a little bit to the right, it should not be catastrophic.

DR. CARRUTHERS: Let's just also highlight one other advantage to being that side of the curve is that you would generate high catch rates. More often what fishermen are interested in is catch rate. There are other advantages that aren't as well communicated in that plot, but that is the other benefit.

DR. BARBIERI: As we look at this and say, okay, what are the lessons learned, I think here there are several that this thing brought to the surface. In evaluating some of the discussions that we had here, some of the ways forward that we've been exploring, really because there is no mapped way forward for a number of these stocks and how we're going to handle all of this. I think that this has been a very instructive kind of exercise, because to me it has really brought to bear a lot of those issues that we had to visit but never had the opportunity to.

MR. CARMICHAEL: One thing I've been sitting here trying to reconcile is these are alarming graphs to some extent considering where we stand now. But the other thing is in terms of achieving, the reason we ended up where we are in terms of some of these scalars from the maximum catch on the ABC and the value formally known as OFL is really because there is a lot of uncertainty around the catch, and there is the difference between what the catch is and what the catch is measured as.

We know that there is uncertainty around that and that uncertainty is not just one-sided. We could have an estimate from, say – and this is the southeast, this is where many, many of our fisheries and many of these data-poor fisheries that we're dealing with are predominantly recreational fisheries.

We know there are high CVs for MRIP; we know that they are particularly high CVs for offshore species. We could have a catch that is 100,000 fish one year and 10,000 fish the next year, so we know there is a huge amount of noise. In a lot of ways, if you were going to achieve

100 percent of that long term – you know, we picked a 10-year period – if you are going to achieve 100 percent of that catch, you have got to have a limit that is some scalar from that.

That is sort of where I think the differences lie here. In our experience setting an ACL that may be some scalar of the maximum catch doesn't carry with it any expectations for many of these species, that the fishery will achieve that catch over the next ten years. We hope that doing that allows the fishery to really achieve this M 100 catch.

DR. MacCALL: It is exactly that kind of imprecision that really is a good application of that moving average. What you don't want to get burned by is in a statistical anomaly where you just thought you caught a lot more than usual and it didn't really happen. That is really common, unfortunately, in the recreational statistics.

If you trust the fishery to naturally not grow, maybe you're okay. I don't know, but the thing is by using a moving average, it addresses the statistical imprecision by saying, yes, we may be off in any one year, but over the long run we sort of at least we've got a constant measure of catch. It might be all 30 percent lower than it really is; I don't know.

But the thing is it allows you to sort of track that ongoing performance without paying a penalty for a single blooper that happens statistically, and nobody wants that. I think that is an aspect of ACLs that really wasn't anticipated very well by the legislation. But, hey, that is what SSCs are here for is to find a way around it and fix it.

MR. CARMICHAEL: In terms of like a risk scenario, based on what you guys have learned here, if your realized catches stayed in this neighborhood, even if you had some limits that were out here, there is relatively low risk; and as your realized catches exceeds the long-term average and approaches some of these maximum catch levels, you should have cause for concern.

DR. BERKSON: Alec, in your talk you sort of stressed the need to think outside the box. Lately I've been really pushing the idea of thinking way outside the box. With 46 percent of the country's ACLs being based on catch-only methods, 100 percent in the Caribbean, the fact that ACLs don't necessarily seem to have been meant for many of the stocks in the southeast, the general concept, and also with Magnuson-Stevens coming up for another reauthorization, with a group looking at revising NS-1; I'm just wondering whether our management ought to be focused around the concept of MSY.

It doesn't seem to be a very practical way of doing things given the lack of information we have. I think looking at other management paradigms, whether it is effort-based, more use of MPAs, community-based management, there are lots of other management ideas, concepts, strategies that could potentially be used with stocks like ours that have the kind of information we have rather than trying to get a management strategy when we don't have enough information, which is really what this exercise is all about. I'm wondering what your take is on that.

DR. MacCALL: Well, first of all, I would never try to guess what the next reauthorization is going to throw at us. The history of the Magnuson Act has been a big scramble every ten years to try to figure out what on earth do they want this time and how do we do it? I remember back in the 1990s we had to do overfishing definitions, which now look pretty routine, but back then they were a big headache for everybody.

Every time they come up with something new, our job is just try to figure out how to do it. To be honest, I think fisheries have gained from that process quite a lot. Even though ACLs seemed like it was totally insane at the time – that wasn't too long ago now – I think in trying to implement that, fisheries are a lot better off than we were ten years ago. I'm not going to guess at what we need to do next time or how to do it, but it is going to be fun to try to deal with it. It will probably be a headache. I can't say much more than that, Jim.

DR. BARBIERI: I agree; it is the type of headache that you get; it is like a hangover. You feel, well, it hurts now, but, gosh, it was well worth it.

DR. DUVAL: Let me be your downer. I think to that point those headaches often have real consequences, and we've seen that with application of ACLs and then trying to ensure that we have enough of the appropriate information so that our more data-intensive models can operate and give us a good answer, because who suffers on the other end, if we don't have that information, are the users of the resource.

We probably experience I think as much of that consequence and that dissatisfaction here in the southeast as any other region just due to the fact that we haven't had the resources necessary to collect all of the data that we would like. We've kind of been sort of the poor stepchild in terms of resources devoted to this region.

I just put that out there that there are definitely real consequences. I don't disagree with you that ACLs have had a positive impact in many ways, but trying to figure out how to actually do it and do it in a responsible way is really tough, especially I think from the management end of things where we're the ones getting our tires slashed for the results.

DR. MacCALL: I totally agree, and I don't mean to be flippant about those things. If I could tell you a little story; back about ten years ago we were really clamping down on the west coast groundfish fisheries, because we had a number of critical stocks that were really depleted and we had to get them back somehow.

The rebuilding plans they chose were what were required under the Act. We didn't have a whole lot of choice on that. But in about 2003 I discovered that there were school districts closing in the state of Oregon due to the decisions I was making. That was sobering. You think about individuals going out of business, that is tragic; but having entire towns go out of existence, that is scary. About all I can say is every one of those stocks on the west coast is improving and a lot of them have rebuilt or within a few years of rebuilding. Hopefully, we can get back to normal. But, yes, it is tragic, I agree.

DR. DUVAL: I really appreciate you coming here and talking about some alternatives and your evaluation and assessment of those alternatives. I will not pretend to understand all the technical details – that is definitely not my skill set – but just making us think a little bit more about this. I actually sit on the council; I'm not part of the SSC. That is why I say what I do.

But as we consider ways to deal with what we consider to be the data-poor stocks down here, I think this was really valuable information. I very much appreciate it and glad to hear that you will be having a workshop. I'm sure there are some thoughts turning around the table of candidate species to kind of run through there.

DR. MacCALL: Can I just say it is really nice that council members are getting to hear this as well as just SSC members. We really appreciate that.

DR. BARBIERI: Back to that point of the headache; I think that you try to make at the end of your presentation there, some of your slides, Alec, some of those take-home messages that you put there; there is this issue of, yes, looking at the flexibility that is needed to provide some level of middle ground. I think you were I believe a few years back at the ACL Science Workshop.

I remember a lot of comments around the room about the data-poor stocks. E.J. was there and Jason was there. From the management community, not necessarily from the assessment community, there was a lot of criticism. I heard at least from a couple different folks, if I remember correctly, about these data-poor methods and the fact that we were proposing to corrupt the assessment process.

At the time we argued, of course, otherwise. To me it was refreshing and reassuring to see those slides, someone with your level of experience. Actually, Tom, you're incredibly bright and a competent guy, but this guy has a lot of mileage on him. He has seen a lot of situations. Alec, you know what I'm talking about.

It is reassuring because it is also a matter of historic perspective that you bring into this to look back at how we're looking at those issues back in the '70s and where we are right now. I think that your suggestions for us to be a little more flexible and allow ourselves to look outside the box; we have been trying to do this.

This is the kind of thing that needs to have some checks and balances, and it is risky to do it without the checks and balances. That is what adds so much value for us to see this kind of performance evaluation exercise and this kind of discussion; because if you are navigating completely blind, you don't know where you are. It is something that it is refreshing to see that sort of reassurance.

DR. MacCALL: I just wanted to point out that since the Magnuson Act started; it wasn't until this most recent reauthorization that we suddenly had a clear reason to try to assess everything. For 20 or 30 years the standard understanding was that we would bring all of our stocks up to data rich. That is what we actually were thinking.

Every one of them that we couldn't assess, we'd just go out and collect that data sooner or later and be able to use a data-rich assessment. Does anybody disagree with that? That is what we were thinking. It wasn't until the ACLs came along that we realized that was a myth. It wasn't happening. Instead of fixing the data, which is pretty impossible, we had to come up with new methods. That is why it was good, as far as I'm concerned. It sort of helped us see reality.

DR. ERRIGO: Just a couple comments. First is I'm a huge fan of the data-poor methods; I think they are horribly underutilized. I've been following them a lot and I'm very familiar with several of them. I wanted to thank you guys for coming and presenting them. This is great and I hope to see more of it in this region where it would really do some good.

I also wanted to comment real quickly on you were talking about the moving averages. The council actually proposed using moving averages, and we actually put in – several stocks have

them. It was taken out of our Comprehensive ACL Amendment, because it seems to me retrospectively looking back as a blanket policy it didn't seem to work.

There were several stocks where if you used a moving average, instead of a single spike preventing you from going over your ACL, a single spike would pull you over your ACL for the three years of the moving average. You would continue to stay over for those years and then drop down. That happened in wahoo. Wahoo had a huge spike in one year. I think that perhaps that methodology would work for some species but not others, and perhaps we should revisit it for our data-poor stock.

DR. MacCALL: Might be to use more years, too.

DR. ERRIGO: Use more years, right. Wahoo is not considered a data-poor stock, but our data-poor stocks might actually benefit more from it instead of all of our stocks. We did actually consider using it. In some of them we still do use it. I think there are some stocks that still use a three-year average.

DR. BARBIERI: Are there any other questions or comments?

DR. MacCALL: I just wanted to say Tom did all the hard work and Dave got the money. I'm just along for the ride.

DR. BARBIERI: No, it is absolutely wonderful and we appreciate all of you putting the effort into this. Obviously, this is going to have phenomenal applications and it is going to really inform for us a way forward. We couldn't be more thankful for the effort.

DR. CARRUTHERS: I'll leave one final point. If people do have data that they want to try and run through these methods, they can make them available. We can try to find our way through that. Usually your confidentiality problems are about spatial, trip level things. This is all very simple. If you are interested in trying to apply these methods to your stocks or something similar, we're developing this tool. If you want to send me some data, we can work collaboratively on it. I'm happy to do that.

MR. CARMICHAEL: How many do you want?

DR. CARRUTHERS: Okay, I take that back.

DR. MacCALL: I just want to warn a few people I'm going to do blueline tilefish as soon as I get home, because that data set is almost identical to the fishes we were doing this spring. It just has a set of catches, one or two crappy abundance indexes. It will be fun to see what happens.

DR. BARBIERI: That will be wonderful. By the way, just to have this on the record, I was trying to present to Alec the advantage – and I mentioned Church as an example of somebody who now has the best of both worlds. He lives on the west coast, but he has the time to come and enjoy the amenities here that we have to offer in Southeast U.S. and the great food and hospitality and all of that. In a couple of years I hear that you may be transitioning to a less active professional role. We will be more than willing to –

MR. CARMICHAEL: SSC applications are due in early May.

DR. BARBIERI: We just would love to have you, Alec. It would be phenomenal.

DR. MacCALL: I have to consult my wife.

DR. BARBIERI: Yes; tell her that the food is phenomenal and the amenities. Let's do a break to then decide where we go with this afternoon. I think that since we have our agenda pre-posted, we might have to delay discussion of some of those issues until the morning, or no?

MR. CARMICHAEL: No, we can move ahead on our agenda. That is allowed.

DR. BARBIERI: Let's reconvene at 2:30. That will give us time to mingle and converse with the presenters.

(Whereupon, a recess was taken.)

DR. BARBIERI: We will continue addressing items on our agenda. Since we did not have presentations and discussion for the snowy grouper and for the mutton snapper assessments, we are actually ahead of schedule. We're going to move up to Item Number 12; ABC Control Rule PSA Component. I think John has a very quick overview.

MR. CARMICHAEL: I guess most people are aware and as we've discussed; we applied our control rule. We mentioned the PSA components that are in there. In our last couple of meetings, when we were going through the ORCS thing and we were doing some various scoring of these stocks and looked into that, and there was some discussion along the way about updated information and some questions from the metrics that went in there and specific scoring.

I think in fact on a stock or two we may have actually made some changes in that. That discussion led to a request for this meeting that maybe we should look at this PSA approach a little bit more in depth and consider if it needs to be updated or if you guys want to do something different about the control rule itself. You kind of wanted to look at both topics.

We have some time here. I think we could dig into the PSA; and maybe if people have some ideas that have gelled since we were last together or maybe look at the control rule and see if there are other topics there now that we've got some experience applying it; are there some tweaks that need to be made to the tiers or the levels or what have you?

With having kind of a luxury of time due to the actions on the assessments and things that we weren't able to discuss at this meeting, we could maybe have a little brainstorming kind of session on some of these and make some progress, I think. Whichever direction you guys want to go, we can bring up the PSA report, the control rule or hear what folks have to say on this.

DR. BARBIERI: And just to get the ball rolling, I'll make a few comments. I think the inclusion of that PSA component into our ABC Control Rule is important and warranted. To me this is not necessarily an issue that would be desirable to be changed. I think some of the discussions that could be relevant here are the nature of the PSA, the procedural process for coming up with those PSA scores.

There is the MRAG method and the NMFS method, the NMFS working group method. We had received presentations on both methods at some point. To tell you the truth, it has been a few years, and I don't completely recall how we got to choose to pick one of those, but we did.

MR. CARMICHAEL: Actually, that is something that we wrote down in the ABC Control Rule document.

DR. BARBIERI: We actually believed that this approach was preferable based on the broad suite of attribute considered in the scoring – and I'm kind of drawing from memory here – and the inclusion of unknowns in the scoring. If I remember correctly, that is what we thought. In general it is believed that including unknowns in the scoring will provide stronger encouragement to address the unknown parameters since doing so will in many cases tend to moderate the buffer contributed by the PSA value.

MR. CARMICHAEL: Well put.

DR. BARBIERI: I'm not paraphrasing, because I'm just kind of drawing from memory here. Further, because of no information contributes to overall uncertainty, accounting for potential unknowns in the scoring is consistent with the underlying control rule framework. I remember that discussion.

The issue is the MRAG PSA evaluation method actually provides you with "penalty" in the scoring when you have an unknown parameter; you know, something about the biology and life history of the species that has not been determined. There have been no studies or estimates available. In that case, that unknown or that uncertainty causes you to have a penalty in your scoring and increasing the level of risk.

Back then, two, three or four years ago, I think that we saw that as a plus. My understanding of some of the issues that we had the last time is as we tried to apply this PSA approach to some of the species we are familiar with, as we go through application of our control rule, we are finding that the risk level that is coming out of the MRAG PSA method doesn't seem to be consistent with our perception of the risk level for those stocks. That brings us to reevaluate our previous choices and perhaps discuss revisiting the issue.

DR. BELCHER: I do remember, too, the other thing with the NMFS was there were certain characteristics that we had built into our tiers that was also being built into the PSA approach that NMFS had proposed, which with the double-counting issue we chose that was part of the reason to step away from the NMFS one as well.

We talked about with looking at them and saying that we felt that there were certain characteristics that either changed over time or whatever, something during the data workshop portion of looking at assessments, that maybe that point you look at all the components under the PSA; like in the case of like you were saying you're getting a penalty because of some unknown.

If the unknown changes; at what point is that going to be updated? Unless MRAG does the reassessment for us, it is not going to change. Is it as simple as maybe finding out can we get that procedure? Then as part of the data workshop aspect have that module rerun for that

particular species would be updates as we see fit. Maybe that is one of the simplest approaches to do in that.

DR. BARBIERI: I think both points are excellent, Carolyn; but just to clarify, the NMFS PSA methodology actually allows you to turn off, turn on toggle, like on and off some of those attributes. Later on after we made this choice, we realized that there is a spreadsheet that is available I think at the NMFS Website. It is probably in the tool box; it might be there.

Maybe not, maybe it is associated with some of the other more ecological groups within NMFS. One way or the other, some of the, quote, management-oriented attributes can be toggled off, so you can actually come up with a scoring that is very similar to using the same criteria as the MRAG. I found this out by talking to Wes Patrick afterwards. They made the spreadsheet that has all the attributes in a way that you can turn on and off some of those.

DR. BELCHER: But what if it was like a main grouping? I seem to remember I thought it was specifically tied in with the stock status stuff that we were talking about and that their susceptibility and all of that; those were things that were built in the susceptibility node. With us already accounting for that in our tier, that meant that susceptibility wouldn't be accounted for appropriately with that overfished/overfishing. I guess that was the thing; I mean. is that critical built in with the NMFS one? I thought that was what our biggest part of the problem was that it has to deal with the stock status. Again, that is like a five-year memory.

DR. BARBIERI: I think in their criteria they have a number of attributes that are more biological and ecological in nature, and those were very much in line with the same attributes that are being used by the MRAG procedure. But then they had another section within their kind of protocol that was more focused on management uncertainties. Remember?

DR. BELCHER: Yes.

DR. BARBIERI: At the time we felt that those were not really –

DR. BELCHER: Part of the science.

DR. BARBIERI: Yes, part of the scientific uncertainty that would be accounted for in our ABC Control Rule, so at that point we had opted to go with the MRAG one; but I think you can turn it off, those management ones. At least it is worth touching base with Wes Patrick; some of the people that have access to that spreadsheet. How do you guys feel about the performance, so to speak, of the MRAG PSA method?

DR. GRIMES: Maybe I shouldn't be saying this given that we just passed on that blueline tilefish assessment, but I think there were some things in there that you would question. I was looking at their table here from the productivity, fecundity, reproductive strategy.

I don't know how we arrived – I don't know whoever in MRAG arrived at their estimates of it. I'm not sure how the calculation of the final number – how much changing just what just one of those cells really matters. Some of it certainly looks questionable to me. You look up there and I would say the same thing.

MR. CARMICHAEL: One thing about it is I believe what they're showing is the risk level. If it says low fecundity, that means low fecundity risk; so it probably has high fecundity. That is what it says the low, medium, high is the risk score.

DR. CADRIN: Page 9 of the Methodology Report has all those thresholds I had mentioned. Yes, it is live bearer, demersal egg layer, and broadcast spawner for those reproductive strategies, and then the fecundities have eggs per year thresholds.

DR. BELCHER: I think some of it comes down to, though, is it the problem with the procedure or is it the problem with the fact that we did not inform what went into the procedure, and that is what the problem is on; meaning that information has changed or – because we weren't involved in how those weightings were assigned. Is that the question? I mean, that is the thing to me is it is not necessarily that the tool is incorrect, but it just might be whatever we're putting in front of it is needing to be updated or whatever.

DR. CADRIN: Yes, maybe we've been too agreeable all week. I'm going to disagree, because I do think the tool is incorrect. I think when the P-star approach is being developed at the national level, I thought this as well. When we met I think in St. Thomas, we went over this Wes Patrick's group. I think we're double counting. I think if you look at all the productivity attributes, Fmsy accounts for all of them.

If a stock has low productivity and high susceptibility, it has a low Fmsy. If it has a high productivity and low susceptibility, it has a high Fmsy. I understand that we may want a layer more precaution in certain situations. I think many of these attributes are already covered. From a strategic standpoint, I question the tool. Not just the implementation of the tool; I question the tool, but I will concede again if I'm a minority.

DR. BARBIERI: I think those are the discussion points that we need to bring to the surface. I think one way to look at this and say, okay, if we are double counting or if this is inflating our P-star penalty; do we have an evaluation? Percentage-wise, what is the average buffer in percentage of yield that we have?

Basically, when you look at our history of P-stars, I don't think we have had one example that is at 0.2 or lower. Most of them are within the middle, between 0.25 and 0.4, which to me would indicate to some extent that there isn't really a true inflation; and it might be that the PSA that is being provided is compensating for our inability to account for some of the other uncertainties in Tiers 1 and 2. I don't know; just to put this out there.

DR. CADRIN: Yes, I agree in aggregate. We came out with 0.3 for blueline. Going back to where I'm from with New England Scallops, probably our best assessment, we have 0.25, but it was pulled out of the air. This is more algorithmic and it has a numerical basis. But really how does it perform is what we really haven't evaluated.

It conforms to the Magnuson and National Standard 1 Guidelines. I think we all feel it is a reasonable application of precautionary approach. As you are more uncertain, you get more of a buffer. In direction and relative magnitude, I agree that our P-stars are all reasonable; but there are alternatives that are reasonable, too, and I think we've seen them this week. In the broader framework we talked about modifying the minimum stock size threshold.

Now, 75 percent Bmsy is just as just as reasonable as 1 minus M; and we have an exception for biomass much greater than Bmsy where we've broken away from the P-star approach entirely. It is reasonable. The ABC is less than OFL, left stock size high, so all common sense. I think until we do really a performance evaluation of this, we are going to be open to the council asking us to deviate from it, validly so, because we don't know how it performs.

MR. CARMICHAEL: I think Steve just sort of jumped right over the PSA and got into something that struck me earlier today. When we developed this control rule, the idea was that these sorts of four things would cover the bases, unassessed to assessed stocks, and we could come up with this and we could come up with this number.

Well, we've also now over time added these tiers. We came up with a tiered system and not just the levels. We have tiers that are some assessed and some not assessed. But if I go up and I look at the levels and when I say, well, this really comes to bear when I have an assessment of some sort; otherwise I can't really use this.

But the assessment information, we had two levels in here that are about having a reliable catch history or scarce or unreliable catch records. Well, where we stand today in terms of how we've applied this; when we apply this to an assessed stock, well, we must have some catch history that is reasonable or else we wouldn't have been in the place of actually having a quantitative stock assessment at which to apply all of that.

Then I think Steve made a good point about the productivity and susceptibility in terms of an assessed stock in a lot of ways is already encompassed in the measurements; and not just what you think it might be based on its traits, but what it actually is realized based on its traits and how its traits have played out over time, which sort of says, well, maybe there is a bigger picture question here, and that is about considering these levels in light of these tiers and maybe a little different approach for the assessed stocks versus the unassessed stocks.

DR. BARBIERI: There is a wall over again kind of thing, because we had discussed this in the past is that we needed to separate application of this. Now, I agree, Steve, that the productivity of the stock in a quantitative assessment is already accounted for, but it is susceptibility of the stock. Some of those more management or issues that are not necessarily to some extent – and I think back – well, the PSA would be to some extent something that might be helping us to account for more of that management uncertainty at some point if we already had the scientific uncertainty kind of accounted for.

MR. CADRIN: Yes, going back to picking up on what John said, when we discussed this at the National SSC, I think there was consensus in the room that it could help for data-limited, data-poor minimally, but we are applying it for all tiers. I agree with you; there are some aspects of vulnerability that are not accounted for in Fmsy, desirability, for example, the price of it; but much of them are. The size of selection versus the size of maturity; those are all in the assessment then. Like I said, there are some that are already covered. If we were to turn off attributes in the spreadsheet like you said, there would be a very few that were left.

DR. BARBIERI: This has been a point of discussion in the past. To some extent it has been – Steve you brought up some of the previous National SSC meetings. I remember that some of the other SSC members from other SSCs were very critical of our inclusion of the PSA in our

control rule. We stuck to our guns at the time and we felt that this was most appropriate. In NS-1 it is explicitly listed as more applicable to data-poor situations. I mean we could revise – and actually the way that we designed the scorings was to bracket that range of risk that was provided by the council. All we will have to do is basically readjust those scoring values and still remain between 10 and 40 percent as the outcome.

MR. CARMICHAEL: Something else that having applied this a couple times; we realized when we wrote this, we were going to learn a lot and we have, and actually the recollection is we kind of said we might have changes in this down the road. I think the intention was there to make it clear this wasn't setting a precedent and we would learn, and we may address it in the future and change it.

What sort of struck me there as we've applied it a couple times is I don't think we have a lot of resolution in our assessment information tier. It seems like when we apply this to assess stock, we tend to end up at like Number 1 or Number 2 or maybe Number 3; but we're really trying to take maybe what is a real range of assessment information from, say, blueline tilefish to Spanish mackerel and cobia to black sea bass.

And because they have reliable catch history, so we're not using 4 or 5, we're really discerning there with a third of our tier. If we backed off of this some, instead of saying this section here needs to apply to every range of circumstances, maybe we honed in on this and made it a little more appropriate to what is in Tier 1, which is a quantitatively assessed stock.

Then we might be able to get a little more resolution in that assessment information. That could be why we've ended up in the situation Steve sort of explained is it kind of at times tended to having a little bit higher allowable values than some other areas where maybe their scoring is more appropriate to an assessed stock across the board and not being sort of all encompassing.

DR. BARBIERI: All of this makes perfect sense to me. I think what it would call for is perhaps for us to discuss some of these potential modifications. We could remove that fourth dimension there, the risk status dimension, and then adjust some of the tiers in Dimension 1. At the time that we build this, Tiers 4 and 5, reliable catch history and scarce or unreliable catch records were really to be dealing with completely data-poor species that we would not be able to quantitatively assess, anyway. The question is shall we try to do this right here right now?

DR. BELCHER: The other thing to think about is that we have done this with equal weighting across our tiers and within our tiers. As you drop options, where now you might have a 2.5 percent adjustment, that is going to be something like a 5 percent adjustment. What is the old adage about measuring with a micrometer but cutting with a chainsaw?

We're kind of getting in to that realm. Just to give an idea; obviously, we know that this is the only way right now we have the ability to assign the weighting. Like I said, it is going to come into that. Like we know at, say, Tier 2, complete and high; in the sense of most of our quantitative assessments as we're saying, we haven't had very many that we've been in the medium to low to none category, because again that is getting in to more of the DB-SRA, DC-AC catch-only. Like as John is saying, you start parsing out a lot of that, so we're going to be taking bigger chunks of the penalty within a few dimensions. I mean just a kind of a thought to think about.

DR. BARBIERI: Well, that may not be inappropriate. I agree with you that could be one of the consequences, but it would give more weight to the assessment information and the characterization of uncertainty, which to me lie at the core. The first two dimensions – and we struggled for a while with Dimensions 3 and 4, with the stock status and the risk assessment. I think that Dimensions 1 and 2, assessment information and uncertainty characterization, really represent the core of the scientific uncertainty that we are trying to capture or quantify or develop metrics for to see where our assessments would be.

DR. BELCHER: I was just thinking specifically, though, if you think we have a 10 percent penalty right now for that characterization, if we drop a tier without any other knowledge, now that is going up to a 15 percent penalty, roughly. I'm just trying to get that kind of –

MR. CARMICHAEL: One idea is that the scoring of those could be tier-specific. We could try to come up with one set of scoring, because we wanted to make sure that as we had less information we applied a higher buffer; but I think that has created another problem on the other side of this.

There may be a way to ensure that you have appropriate higher levels of precaution applied for less certain information without limiting ourselves to having only one scoring set of metrics that we try to apply for everything; from catch-based average catch through a full-blown stock assessment.

DR. CADRIN: Yes, I think there was a sequence of strategic decisions. The first one was that the council wanted risk of overfishing to range between 10 percent and 50 percent. That has varied regionally some. I think the Gulf is 10 to 40 percent; others are 0 to 50 percent. I think part of the reason that the result – I don't lose sleep over the results.

As you said, the P-stars that we've been coming out with are reasonable. It is the details of getting there. If we were to drop a tier, we would probably have to change the penalties for the other three to meet that 10 to 50 percent strategic decision.

DR. BARBIERI: Right; and that is exactly what I was trying to say before in terms of rearranging the value of the scores. What she's saying is that because you have less tiers or you have one or two less dimensions to account for; the relative weight of each tier, of course, each tier becomes higher.

I understand that and in my assessment that is not necessarily bad. It might be actually good. I feel that the way that, for example, we are separating the penalty between having a fully estimated MSY with a steepness estimate and using a proxy for a fixed steepness has got a small penalty there. That is a huge uncertainty that has major consequences I think in the shape of your PDF at the end.

DR. BELCHER: But those were again those early conversations we had; that without any other knowledge to help inform us as to what the weighting could be in terms of heavier weightings as opposed to you have 100 percent or, say, 10 percent that you have got to parse over 5 possible outcomes; without knowing how much there is in terms of a penalty and weighting it accordingly, the only thing we could really do is an equal weighting.

Unless we've gained information that can help us determine Tier 1 has a heavier weighting than Tier 2 or whatever; you're still kind of stuck back into that idea of all we're doing now is bringing ourselves down into actually like I said smaller resolution. Where we start now where, like I said, in Tier 1 there is a 2.5 percent difference amongst our choices; if we drop back to 2 and it is still a 10 percent penalty; now each of those is a 5 percent penalty. Do you see what I'm saying? The more we drop in trying to say that we – and I understand what John is saying.

I totally agree with the fact that if we're constantly sitting on Options 1 and 2 within a tier, why have the other three because we're never hitting on those? But at the same point in time if you drop those other three out, now we go back to this equal weighting unless we have knowledge to say this one should account for a higher penalty than the other one should. Is that –

MR. CARMICHAEL: No, not really. I think what I was thinking in terms of the first one there is more of giving us some more options in there that are more relevant to an assessed stock, so that you may still have four levels, but it gives you a little bit more resolution. I mean we had to have a debate about whether fixing steepness versus estimating steepness gives you this – you know, it comes down to did you fix steepness or estimate steepness?

Well, there could be more issues within a stock assessment that are worthy of consideration that could give us a better resolution when we go in and judge that assessment. I think we're forcing ourselves to judge a wide range of assessments on basically two characteristics as how it is played out. We may not know more, but I think we certainly have more experience.

DR. BELCHER: Yes, and I guess what I was missing in your point was the potential of adding in. What I was hearing is we were eliminating so that we would be with two, and then the question becomes, well, at that point, now you've just gone from where you were only going to give it a 2.5 percent penalty and now you're dropping it and giving it a 5, so you're almost increasing the penalty for being better.

But if you are going to take and resolve that and make it where there is more refinement, I understand that aspect. But I think again as we start building with that, it is almost like you've got to see how that P-star number is going to change, because you may find that inadvertently you increase the penalty or decrease a penalty in one that you thought you should have a higher penalty for. That is the only pro and con game I think about coming back and forth at those changing tiers and changing levels within the tiers.

DR. BARBIERI: I understand your points and I think we can take them into account and still get started with some attempted effort here to modify our tiers, maybe eliminate 4 and 5 or substitute 4 and 5 for other attributes; spread all five of them in a way that they better reflect the resolution that we want to have between stocks and stuff.

MR. CARMICHAEL: Maybe one thing they do is that they just sort of move down and become part of a tier. Your tiers that deal with just a catch history start with a 10 percent penalty and then you have some other criteria within them; so that then if all you are dealing with is a catch history, your best case scenario becomes 40 percent chance of overfishing occurring.

If you're dealing with assessment, you don't have that extra ten years, you could get up to 50 percent. It would be pulling those couple of things down and putting them down in the tiers

instead of dealing with it in this level and then allowing you to find better traits to describe your assessment.

DR. BARBIERI: No, completely agree. All I'm saying is that still will require a revision of this one.

MR. CARMICHAEL: Yes, they'll have to revise it and the opportunity is here to revise the control rule. The council is already looking at it based on our last recommendations about including ORCS, so they have an amendment that is working its way through the system that will revise the control rule. If we have ideas, now is kind of an opportune time to consider these changes.

MR. COLLIER: One of my thoughts was to move the PSA and put that under 4 and 5 as an additive penalty, because they don't have the susceptibility and productivity incorporated with the catch series. It would be if you are in that tier, you automatically get this.

DR. BELCHER: The only problem with that, though, is we don't have a P-star approach at that level so that penalty is moot, right, unless you're just going to say it is assumed. I guess the question becomes what is that percentage going to end up being?

MR. CARMICHAEL: Perhaps it becomes just a percent difference between OFL and ABC. I think we kind of knew this; we weren't going to have a tier or P-star in all of these. I believe that we thought that in a way at least it gives us an adjustment factor, which may not always be applied to P-star.

It could just be applied to actually directly calculating the poundage buffer. That is why these scores are not really P-star; they are an adjustment factor. We apply it to a P-star for assessed stocks. We discussed in these other tiers that we could apply it to some other metric such as the actual catch to come up with the adjustment there, too. I think that still works.

DR. BELCHER: But what about the aspect we've talked about, too, that 10 percent doesn't always equate to a 10 percent reduction in yield? I'm just throwing out some things that I just see as a little bit of a hitch, because that has been one of the things that we've talked about is just because we have a 37 percent penalty doesn't necessarily equate to a 37 percent buffer.

DR. BARBIERI: The question is here – I have to say personally I am struggling a little bit; because even though the evaluation of data-poor methods presentation and discussion was fun, my brain is hurting a little bit. I'm not sure if I have the –

MR. CARMICHAEL: Quarter after three; it has been a hard week for you.

DR. BARBIERI: I mean this is my typical workday. We can try to do this right here. I'm just wondering if it would be more efficient.

MR. CARMICHAEL: Let's figure out where we are. Do people thing we need to change?

DR. BARBIERI: I assumed there was consensus on that and that was too much.

DR. CADRIN: Actually, I think what I heard was that it is generally okay. It can use refinement and improvement. I don't see anyone saying that we're completely doing the wrong thing. It conforms the Act, to the Guidelines, compares to other regions, sensible and all those. Different people have different opinions about how it could be improved.

Maybe this is subgroup and maybe beyond SSC members. This could be Center, RO, council staff, and SSC. In New England we're going through an ABC Control Rule Working Group right now, and it is a working group from a lot of different committees. There are fewer people with more diverse backgrounds.

DR. BARBIERI: I like that suggestion. My concern is that we have been discussing some of these points of dissatisfaction; not that we feel the ABC Control Rule is inappropriate, but there is that sharpening the saw from time-to-time approach, and because there might be an opportunity here for us to revise what is going to go before the council. I mean, not that the opportunity is the last time; there will be other opportunities.

I would rather that we not fall under that sort of comfort level that, well, it is easier to just let it be and we'll worry about this down the road. I hear what you're saying, Steve, and maybe we'll do this separately through a committee that is encompassing all the suggested membership that you mentioned. I think the time has come for us to at least take a look and come back and say we are truly happy after we evaluated all those things.

DR. REICHERT: I wanted to repeat something that Steve said earlier. Maybe it is good for us to see, okay, since we developed this, how have we applied it and look at the instances where we may have had to deviate or we struggled and what cases didn't work, and that may give us a little bit of guidance in terms of the urgency of adjusting the ABC Control Rule.

DR. BELCHER: My only concern was as we were talking about this – you know, again we came into this with the idea of discussing the PSA and what the PSA was contributing to it. What got me a little bit nervous was the fact that all of a sudden we were unraveling the entire process, understanding that we have things that are in front of us.

I do recognize the same thing that John is saying is you find yourself, yes, we have these tiers and we're only using a couple of them, and then we really do need to talk about whether or not that is a fine enough detail. I totally understand that; but when we were originally focusing on the PSA, what are the issues with the PSA; and then I can understand the issue of the discussion to argue keeping it, extracting it.

Like Steve said is it the components that are bothering us or is it the actual process that is bothering us; because if it is the process, then we need to come back and discuss the process. But we just kind of unraveled half of the sweater with going back to say we need to look at all of our tiers. That was like, okay wait, how did we go from PSA and discomforts with PSA to now the whole revisit on the rules? I think we do need to look at it.

DR. BARBIERI: That makes sense. In my case personally is because I've had some of these concerns for four or five years and they have never been addressed. If we go back and look at the meeting transcripts – and I remember discussions when other members were still around here – we discussed all of this.

At the time, as we applied the rule, when we looked at the tiers, we felt there is room for improvement. It works well now; it is giving us perhaps what we need; but it is just the fact that we left the door open to refine and improve this with time. To some extent, we haven't done that. Five years have gone by and we haven't done it.

DR. BELCHER: To that point, I agree with you, because that was always the discussion. When I took this to the Mid-Atlantic and had the presentation to the Mid-Atlantic; one of the concerns was are the weights chosen appropriately? None of us argued that the weights were inappropriate or appropriate.

The problem was we had to start some place, and the only place you could do it was with equal weighting. The question to me now becomes have we gained enough knowledge that we can argue towards a different rationale of weighting and how are we going to come up with that? Right now I don't know that we have enough evidence in front of us to argue for that.

For me, I'm not trying to squelch our moving forward; it just makes me a little nervous to all of a sudden see what looks like we're going to just kind of throw it all and come back to ground zero, but we're not really informing ourselves quantitatively with the information. Do you know what I mean?

DR. CROSSON: I guess my question for this process is you talked about the process and the way we've been going through it and designating these different tiers. I'm more concerned about the outputs. I mean is there a feeling by the committee – you know, how sausage is made doesn't really concern me about the process so much as do we feel the outputs have been insufficiently cautious or overly cautious or just not scientifically justifiable?

That is kind of the way my brain has been splitting out. Now that the SSC doesn't meet at the same time as the council – and this might be a question more for Carolyn as much as yourself – I don't know what the council's feelings have been about the way we've been applying the PSA scores.

I know that we've been putting pretty large – well, I guess my big question is how the council is feeling about this. Have they given you any feedback? You go and present our reports to the council on a regular basis or at least several times a year. Do you have any feedback you can give us about the way that the council might be thinking we need to address this? I'm looking at the overview document, and I see in here we had brought this up before in the past and the committee said this, but I don't see anything about what the council wishes us to address with this.

DR. BARBIERI: I don't mean to speak for the council, but we have Dave here. In general, my impression is that the council hasn't really had any problems with – you know, no concerns coming from the council regarding our ABC Control Rule. That would not be a motivation from my observation.

MR. CARMICHAEL: I concur with that; I don't think the council has had troubles with the P-star values that have been put forth, and I don't think that has been the impetus for any of this at all. As I said, there were questions about the PSA. Steve raised the point is that something to even be included in your Tier 1 stock assessments where you have a lot of that included?

I think that is how we got from looking at the PSA over to looking at the overall control rule, because the PSA as a tool may have complete applicability on lower tiers. That was Chip's point earlier, which I totally agree with that. I think that is kind of the problem. It is that one size fits all set of levels now onto something which has grown to four or five tiers.

It is like we keep cobbling on pieces to this framework; and maybe at some point we need to say, whoa, do we need to rework the framework to better support all these pieces that we're cobbling on to it? I think that is why we're having this really good discussion about the ABC Control Rule overall; and not that we skipped ahead or jumped or left anything behind.

The PSA seems fine and maybe we should update the values. Maybe that should be something the data workshop does. Maybe that is something we should have a group do at some point as a task and just update all of them. I think all of those are good things to consider. I don't think we can solve all this here today. It will probably take a group to work on it. If we get some ideas to what things people think are of concern or good ideas to look at, then we're helping ourselves down the road.

DR. BELCHER: Just from my past experience with the growing pains of having put it in place; I don't feel that the council has ever been dissatisfied with how the rule has been applied. What we've found, as we saw with Spanish mackerel this week and when we talked about wreckfish in the past, that it doesn't work as seamlessly for every – there are certain things that we are not taking into account in the assessments.

As we talk about it after the fact, we recognize, well, maybe that isn't something that this best accounts for and what can we do to account for that? The ABC is setting at a constant level or revisiting the fact of how we're picking highs and lows or whatever when we did that first decision-tree approach to how we were dealing with catch-only series.

We understand it is still a dynamic and jumping document. I think the council has worked with us on that, but we have never really had any major pushback on anything to say that that PSA is unreasonable – I'm sorry, the P-start is an unreasonable penalty. We've not had that.

MR. CUPKA: Yes, I concur with John; I don't think we've ever had a problem with the control rule and said there is a problem; but I think we've all recognized that it was a new process and as we gained experience, it would be worthwhile to come back and look at it and see if there are any changes that are needed or could be made to it.

I think what generated some of this is more related to the PSA. I think where some of us started to question some of that process was when we had the ORCS Workshop and we went back and looked at it for some species and thought that some of those rankings or values were not appropriate. I think we even changed some of them.

I think the real question or the questions that we've had, at least some of the council members that were involved, were more related to the PSA and how it related to some of these data-poor species more so than the control rule itself. We've always realized that we would probably need to come back to the control rule at some point when we've had experience and take another look at it.

DR. ERRIGO: I just had a question. This calculation that is used to calculate P-star; do we use that at any other tier to calculate a percentage for anything?

MR. CARMICHAEL: We haven't, but the expectation when it was created was that you could. It is mentioned in some of the lower tiers, I think, about DC-AC and DBS-RA, that it could be brought in there.

DR. ERRIGO: As like a buffer between the value? It just seemed to me that it is only used in the Tier 1, that these dimensions, most of the factors are inappropriate for Tier 1 assessments. If you are going to have a Tier 1 assessment, the uncertainty category; you are never going to have a Tier 1 assessment that doesn't have a categorization of uncertainty. It doesn't make any sense. It seems perhaps revisiting this might help make it more useful to you guys.

DR. BARBIERI: That is exactly the point, Mike. I can tell you some of these discussion points I recall have existed for four or five years; that we had recognized that from the very beginning that we put together the Tier 1 ABC Control Rule, we were not at that time thinking about fully assessed versus data-poor unassessed stocks. We never went back to revise it.

There might be an opportunity. Let me phrase this in a way that might help us move forward. Steve made a suggestion that we consider looking at having a committee put together or a working group. It could be another workshop or it could be done offline to actually reevaluate like we've done in the past.

We will bring some ideas and configurations and have in front of us a menu of different options on how to handle some of these aspects of the control rule. We will do this in a way that is more inclusive of all the other tiers, so we have better continuity between Tier 1 and the lower tiers in our control rule. Would anybody disagree with us moving forward with this approach?

MR. COLLIER: It sounds like a good approach.

DR. BARBIERI: Okay, I agree. Then in terms of timelines, this is something – and I don't want to be premature here, but I'm thinking that we have two action items that are associated with subcommittees that we have identified at this meeting that might take precedence over this. One is the shrimp subcommittee thing that is going to make some decisions on how to address assessment and reference points and make some suggestions for that workshop that we recommend be put together to discuss the shrimp assessment and management issues.

Then we have the other one, which is the Video Survey Working Group Meeting that we would have associated with our next meeting since everybody is going to be in the area. It is going to be done similar to how we handled the ORCS Working Group before and allow us to discuss those issues.

In terms of timelines, just for us to think about it, it might be something that we might revisit this discussion in April after we have had some more time to think about it. Actually, some of these discussion points or directions might be actually outlined in our overview document, and we basically revisit this in terms of planning for October.

DR. REICHERT: I thought it was the SEDAR that we were going to discuss prior to the next SSC meeting.

(Remark made off the record)

DR. REICHERT: Yes, The long-term planning and not the video survey. I don't think we had decided that was going to be part of the next SSC meeting.

DR. BARBIERI: I couldn't remember; I looked at you and said video survey. The SEDAR priorities in scheduling the draft paper that John Carmichael developed, and we would discuss that. Anyway, we have those two workshops coming up between now and April. Perhaps we'll revisit this issue as an agenda item for April. At that point, we'll discuss steps forward with scheduling and structuring that committee. Does that sound okay? Are there any additional questions, comments or concerns regarding ABC Control Rule PSA components?

MR. CARMICHAEL: Do we want to have a topic for April where we convene a group to try and have some strawmen for October?

DR. BARBIERI: Ideally, yes. My mentioning the two other workshops is that I'm thinking how much time people would have between now and then to be able to participate in the shrimp one. I know I am going to be attending the data-poor workshop thing in January. Then there are a few other things between now and then.

But if there are some folks who would be willing to step up and help form that subcommittee or volunteer for that subcommittee or working group, those people could basically – if I understand what you're saying John, those people would sort of draft some ideas or an outline and kind of propose perhaps some working group composition members; kind of put together some ideas and bring that for the committee discussion in April.

MR. CARMICHAEL: That would be great.

DR. BARBIERI: Would anybody be interested in participating or volunteering for that sort of a subcommittee that would be discussing and helping John and Mike prepare this item for discussion in April?

DR. ERRIGO: Are you sure you want to leave it up to just us? I just wanted to ask a clarification. I wanted to ask a clarification about the subsequent larger committee or working group that will be. Will that include people other than SSC members? Are you envisioning like Science Center staff, regional office, et cetera, similar to the New England process?

DR. BARBIERI: Yes, that was my understanding from Steve's recommendation that is similar to what I think is being done in New England. That would include Science Center and SERO and external scientists, if we would like to invite them to participate, council members, and stakeholders.

DR. CADRIN: Yes, and as such it is probably best to have regional membership to have live meetings of this group. If it were by correspondence, I would contribute, but I really can't see being able to travel down for these.

DR. BARBIERI: You see right now, Steve, what we are looking for is not really volunteers for that working group. Right now, if I understand what John was asking, is organizing a committee of sorts; SSC members who would be working with me, Marcel, John and Mike and trying to put together some ideas and propose a few things that we will be discussing in more detail at our April meeting, with the thought of actually getting this accomplished between then and our October meeting.

DR. CADRIN: I would be happy to help with that.

DR. BARBIERI: Okay, thank you. Are there any other volunteers? We might be covered now in terms of between me, Marcel – and I'm volunteering you, Marcel; you don't need to volunteer. Okay, that sounds good, Mike, because that clarified that issue.

DR. ERRIGO: I just wanted to make sure I got it in the notes. I wanted to make sure that was exactly what you guys were looking at.

DR. BARBIERI: Well, I think we are ready to move on to agenda item; Snapper Grouper Amendment 22.

MS. BROUWER: Okay, Attachment 22, and this is a revised options paper. I think we've had three, four or maybe five versions of options papers for this amendment that the council has been considering since 2012. They looked at this in September; and the version of the options paper that you have in your briefing book contains the guidance that the council gave us in September.

They pared down the number of actions to what you see on your screen. Basically they just want to establish a recreational harvest tag program that is going to be sort of a generic type thing. They decided not to specify right away what species it would apply to, but to include in this amendment a procedure that would allow them to select what species this would be appropriate for.

Then they're looking at establishing the eligibility criteria for folks that are going to participate and address cost recovery, which is a requirement from what I understand. The proposed timeline is that we're going to bring this back to the council in December. Hopefully, we'll have enough analysis there for them to select preferred alternatives and approve this to go out to public hearings in January of 2014.

Then they're going to review the public input in March, give us some more guidance on what they want to do and approve it for formal review at the March meeting or the June meeting in 2014. That is basically where we are. One thing that has changed since you guys looked at this last time was the council decided to remove the option to have a data collection component with the recreational tag program.

That is no longer included as an option in here. They want to strictly have the recreational harvest tag program be just for keeping tabs on species that have very low ACLs. This options paper includes examples of those species; snowy grouper, of course, is one of them. The recreational ACL keeps getting exceeded by large percentages; the same thing with golden tilefish. Both those species, the ACL is specified in numbers of fish and not in pounds.

Then we have wreckfish, of course, which is specified in pounds. The problem there – well, it's not a problem; there is a recreational season, a two-month long season that was implemented through the Comprehensive ACL Amendment. That went in to place April of 2012. The landings have been very low.

I believe only 8 percent of the ACL was actually landed or at least the last time I checked the landings. These are just included in the options paper sort of as examples of species that the council could look at that would benefit from a recreational harvest tag program. Then we discussed in September recommendations.

DR. CROSSON: I'm sorry; do you want to do the presentation and then take questions, because I did listen to the council discussion and some things were unclear. They sounded like they were going to be decided upon later. The key question I would have I guess is about transferability. It seemed to me, when listening to the council discussion, that they had to talk to – the council seemed relatively neutral about what would happen with the tags once they were distributed; but that NMFS' legal counsel had to answer the question about if the council did remain neutral on transferability with the default status, then if that was allowable.

I did hear the regional office counsel say that was not the case for commercial licenses, but that perhaps she had to find the answer for that for recreational tags. Has any guidance been given? I know we had the shutdown. Okay, so the answer to that is no right now. But the council's position, when it said that transferability – that strike-through that you have for transferability; right now it just means that it is neutral. The document is sort of neutral on it; it is not prohibited?

MS. BROUWER: Right; and you are remembering a whole lot more about that discussion than I remember currently. But, yes, the transferability, they were sort of on the fence about it, but they did instruct us to take out the action that addressed it; so, yes, pending guidance from NOAA GC. Mind you, like you said, Scott, the shutdown had, as you know, a big effect on our timeline. We haven't yet had the chance to speak with the Regional Office staff about this amendment. This is just barebones. This is just basically what the council said to do in September and that's it. We haven't discussed anything else at this point.

MR. CARMICHAEL: Isn't part of that if it just becomes a way of making sure that not too many fish are caught, because you issue the number of tags equal to the number of fish that can be caught; who ultimately catches that fish or what happens to it is not really a major concern. It is only if you wanted to know more about that fish afterwards that you might need to have some restrictions on that so that you know who got the tag and who to come after if they don't tell you the information on it.

DR. LARKIN: I am a bit confused by this; because if it is purely just to track the number of fish, why have limits on eligibility? Why talk about things like cost recovery, for example?

MS. BROUWER: That is a very good question and one the council will have to think about in December.

DR. ERRIGO: They still need to administer the tags, right? They still are considering a lottery system. It depends on how many people want tags and how many fish there are, so that depends

on the species. Cost recovery is for them. It takes so much money to administer the tags so they want to try to recoup that, because they don't have money to do anything. If they don't have any cost recovery, then they will have to take that money from something else is my understanding.

DR. LARKIN: Yes, so I get that part. It just seems to be a little bit confusing when you talk about eligibility then, for example. Why restrict the pool of who can have it if you purely don't care who is harvesting it?

MS. BROUWER: I think when we get to the – and I'll show you what the alternatives are under that action. There is an alternative that would make anybody who is a U.S. citizen or a permanent resident alien eligible. There is an alternative that requires the applicant to have a license for the state in which they're going to be fishing. There are a couple of alternatives that do kind of tweak who can apply for these tags and who can't.

DR. LARKIN: I guess from the social science perspective, if you're going to require them to provide information to be in the lottery, why not take advantage of the opportunity to get some information on them? One of the things such a program could do is create value. Of course, it creates incentive to cheat, too. There are a lot of really interesting issues to investigate. It seems like the potential to do that might be lost if we sort of gloss over what might actually happen if one of these programs goes into effect.

DR. BARBIERI: Sherri, I think this is exactly why we are seeing this presentation. This is the kind of feedback that staff and the council are looking for. Before this goes before the council in December, they are looking for some suggestions of, okay, here is where we are with this. I think we might need to start capturing some of these comments, because they are actually helping. If they are not suggestions right now, at least for us to explain to the council in December and bring up those points, because they may not be thinking about that right now. All of this I think will be a big help.

DR. CROSSON: Getting back again to the transferability question; for legal or policy-making reasons transferability is not allowed, then the council in any particular; I understand this is a framework, first of all, not for any particular species. But, if tags are tied directly to a person and either a person uses the tag or they do not, then it would probably be acceptable to assume that a certain percentage of the tags are not going to be used and that you might actually issue more tags then the ACL is for the recreational sector for fish. Okay, you're making a face. It would be highly unlikely that 100 percent of the tags would be used if they are not allowed to be transferred.

MR. CARMICHAEL: There you are getting into the things that suddenly make the program become much more complicated. The council has talked about it a couple of meetings. The last meeting was really focusing on the purpose and need. An important part of that purpose and need is to know whether or not you want an accountability measure to make sure a certain number of fish is not exceeded or whether you want something that tells you how many fish were caught.

If I want to know how many fish were caught from a tag program, I need to know the fate of every tag once I've issued it. If I just want to make sure it is a cap, I don't have to worry about the fate, and that is where things got complicated. The issue with this is you're dealing with very

low catch limits. They didn't want a program that became very complicated and involved a lot of administration.

That has been sort of the concern as I understand it, Myra, is about this thing becoming difficult to administer. It is nice to say it would be great to get a lot of information on these people, but you're talking a very small subset. The information that you're going to collect on the people who may do this may be of uncertain utility.

If we want to know about the fishermen that are involved in snapper grouper, as far as I'm concerned we need to have a snapper grouper recreational permit. Then we collect a true universe of information that is useful. Getting information on 150 people that apply for a tag for a particular species, what are you going to do with something like that?

I think does the cost benefit work out? I think that is why you're seeing the system and this program get considerably simpler and why we saw them remove the data collection aspects of it. If 150 fish can be caught for this species and we're going to give out 150 tags, they had some eligibility things. I think that just gets back to it is more saying that any U.S. citizen can apply.

It is clear that it is not just the southeast, and that is just a federal government thing. Some other aspects of it are just in keeping with the rules and stuff, like saying you have to have a fishing license. Maybe that is the council thinking that is a way of making sure that it doesn't get caught up by people who just want to put that fish in the drawer and know in their heart that fish was never caught. They want to make this available to the users of the resource. That is sort of the thinking and the discussion that has gone on in this for the last couple council meetings.

DR. SEDBERRY: This may be a stupid question. If I go deep-dropping, do I need a tag for a snowy grouper and a tag for yellowedge grouper and a tag for a wreckfish and a tag for – you kind of have to know. If you want to get into this lottery, you kind of have to know what you think you might catch.

MR. CARMICHAEL: To retain them, yes; but then again now wreckfish was, what, a two-week season?

MS. BROUWER: Two months

MR. CARMICHAEL: Two-month season; so, yes, rather than say wreckfish being a two-month season, it would be you could retain it if you have this particular tag.

DR. CROSSON: Just in answer to John's question or at least the council's concern about gathering data; if there are 150 tags or something or 2,000 tags whatever given out, there is plenty of useful information that can be gathered form that afterwards.

As long as you have a set pool that you know who applied for the tags and who received the tags, you can go back and survey people afterwards and get all kind of things out of there without interfering with a simple program like it has been described where NMFS or the council are just distributing tags initially. Their concern is just that the ACL is not exceeded; and then you assume that if there is, like you said, 9,000 tags issued or 2,000 tags issued, that is how many fish are caught.

You can still gather economic data or any other kind of data, probably biological as well maybe, I don't know, afterwards without complicating the process unnecessarily. I did hear a concern brought up by the council about unnecessarily making the program complex. I think the data-gathering process can be separated out sufficiently that it wouldn't complicate things from a practical standpoint.

MR. CUPKA: Scott is right about this. The council realizes that there is an opportunity there to get data; but the cost of the thing and it starts growing exponentially, we just didn't feel like it was the right thing to do. At the very least we would have a list of names and addresses of the people who were issued tags.

If some university person or somebody wanted to come in and request that, then they could do a survey, but we didn't want to make all that part of this process because it gets very cumbersome and expensive, but that opportunity will be there when they issue those tags. We could make that universe available to anybody that wanted to get information from those participants.

MR. CARMICHAEL: That is what I was trying to say, therein lies the difference. You'll have the information. You know who has applied. You don't know who the tag was mailed to. If the agency chooses to save that information because someone like you who works for the agency can convince them that it is worthwhile to maybe send it to you to keep, then that is fine.

If you want to send a survey to them, you can do that, but that is very different then making this obligatory of the person who gets the tag and having this thing really grow. That is what they were trying to do; not that if someone wants to tap into that as a resource. Maybe they'll save it; maybe they won't. Maybe there is a privacy concern if there is some federal government regulation I don't know about that keeps them from retaining that information on file, I don't know, but there could be other issues to consider.

DR. CROSSON: When this originally came before the SEP a year ago, you drop it in front of a bunch of economists, their eyes lit up like it was Christmas morning about the potential data that could be gathered from this. This is a very unique proposal, and there are not a lot of programs like this at least for fish elsewhere in the world. That was something that didn't necessarily mean that the SEP thought that all that data needed to be gathered at the point at which people were applying for the license or going out and fishing.

DR. BARBIERI: My understanding from what John explained is that identification of that sampling frame, that group of anglers would allow that information to be used for surveys that would be subsequent to actually just issuing the permit and a tag. It is not completely lost.

DR. LARKIN: I guess one recommendation would be for the council to consider the cost of what it is that they plan on doing. For example, the costs are going to be driven by the number of people that apply or the number of tags that are given in terms of dealing with the paperwork, printing the tags, mailing them out, and not so much based on the number of questions you put on the permit form that you ask them.

If there can be a little leeway in terms of whoever constructs the permit application form, that might be a costless way to get information from the people who are applying and what they intend to do that would be different than what you might collect ex-post.

DR. BARBIERI: Message taken and I think it is a good point. Mike is trying to capture some of this at least in bullet format. I'm going to ask you and Scott, when our draft report is circulated, that if you can flesh that part out for Amendment 22 in a way just to bring some of these things up. They may or may not be really relevant to this discussion or not the way that the council wants to proceed with this at the moment, but they will be informational and will give the council the opportunity to think about this and consider for the future.

MR. COLLIER: How is this going to be allocated between the charterboats and the recreational, because a charterboat fisherman that goes out five days a week is going to be impacted much more by receiving one tag than a recreational fisherman that once to go out once and catch a fish?

MS. BROUWER: That is again another question for the council. They chose to not make a distinction. We initially had an alternative that would essentially allocate the tags for the for-hire versus private recreational. They chose to take that away so that there isn't going to be an allocation. Everybody is in the same pot. Everybody has the same chances of getting a tag. That was one of the issues that the for-hire representatives on the council had with this particular amendment and why specific species were taken out; in particular red snapper.

DR. BARBIERI: Chip, we can phrase this as SSC has expressed some concern over the lack of that dedicated allocation.

MR. CARMICHAEL: A concern or just a question?

MR. COLLIER: I believe Luiz has elevated it to a concern.

DR. BARBIERI: I don't mean to speak for you. If it is just an observation let's list –

MR. CARMICHAEL: That was a why come; that was not a concern.

DR. BARBIERI: Do you think that this could potentially create problems?

MR. COLLIER: Yes.

DR. BARBIERI: Okay, anymore questions?

MS. BROUWER: Okay, up on the screen I have a possible Action 2, which establishes the eligibility criteria. This is what I was mentioning earlier. There are four alternatives. It addresses things like foreign vacationers being able to get tags or just excluding those folks. There is this action to do that.

Then another thing we discussed with the council was how are they going to select the species that this applies to? We had put together some options on maybe base it on PSEs; how do you determine when an ACL is low enough that those species should be included in the recreational tag program?

We went around and around and ultimately the council decided to take that action out. We still don't know exactly how this is going to be decided; but we do have obviously the three species

that I mentioned that would be good candidates to be included. Then just specifics of the lottery program; make it web-based or make it more accessible to other folks. Another thing the council asked us to do was for staff to convene to talk to state representatives about the logistics of administering a program like this.

That was mainly just to get information on administrative details of such a program and whether perhaps the states could assist NMFS to implement this program and to run it. We have not yet had the chance to convene that conference call, so I don't have any information on that. Then the last action like I said is the cost recovery. Mainly that was just for the agency to recoup the cost of administration. That is everything that is included right now. There are no analyses. Are there any other questions?

DR. BARBIERI: Alec actually brought up a point as a suggestion that I think would be a good discussion point is what if instead of issuing the tags every year, you have the tags be valid for two or three years?

DR. ERRIGO: We are already having people screaming that this is recreational catch shares. If you have people getting a tag and being able to fish for two or three years, I think that would be worse.

DR. REICHERT: But one tag is one fish, so it doesn't really matter whether you catch it the first year or the second year.

DR. BARBIERI: No, I know what you mean, but you see my concern is that if you save – unless there are more tags – you know, we don't have tags to reissue for three years. A tag that I saved from this year I decided to use it next year; but then if everybody else does, it could exceed.

MR. CARMICHAEL: By that logic it would be okay for any unused commercial quota to be caught the following year, and the rules have been that would result in overfishing; because if you caught the leftover last year and you caught the full amount this year, then per the rules you resulted in overfishing.

If no one caught their fish this year and everybody caught their fish next year, you issued three years worth of tags at one time then all catch them; or if I didn't use my tag this year and I wanted to use it next year and we issue another 100 tags on that fish next year and no one last year used their tags; there are 200 valid tags out there in the population and twice as many fish could be caught in this year.

Therein lies the problem. Until we resolve this issue of whether or not unused quota can be carried over with a result resulting in overfishing, then tags are going to have to only be good for that year because otherwise it is potential that they result in overfishing.

DR. SEDBERRY: Is that one year that the tags are good for the calendar year or the fishing year for that species?

MS. BROUWER: Right; so it would be tied to the fishing year for that species. I guess that is maybe just my assumption.

DR. CROSSON: I'm sorry, are you still presenting, because I have questions but I don't want to keep interfering. Okay, then one of the actions that is front of us from the overview document asks can such programs provide data for use in assessment or other status evaluations? Does the committee have a sense as to whether a program like this would provide any useful information for assessment? That is something we do have to decide here.

I'm not qualified to answer that because I'm not a biologist. If there was data collection done afterwards and we just knew actually how many tags were used or we were able to estimate that based off of a sample; would that be something that would be useful – or where they were caught?

I know for a lot of these species there is a lack of solid fisheries-dependent data from the recreational sector. My assumption is that a lot of the fisheries that are being considered for this are ones where we've had difficulty using MRIP or MRFSS to control catch, because the estimates are just not coming out accurate.

The ACLs end up getting exceeded or at least they are unknown whether they're getting exceeded. Is there any information? I'm asking the committee this, not you all, if there is anything that would be useful for the stock assessment process that should be included in thinking about data collection from this program; whether it is done afterwards or whether it is done at the time of application.

MR. CARMICHAEL: The answer to that is absolutely, and that has been the discussions that have been held at the council level. But as Myra said initially the council has decided not to include that aspect in this amendment. But, yes, if you issued tags and you got information back on those tags and you could ask for lengths of those fish or where those fish were caught, you could have very good information to help your assessments of these species and to have an accurate count of the recreational catch; but that is not the direction the council chose to go in. That is what I expected to talk about on this topic and then the direction has changed.

DR. CROSSON: Okay, so the answer is even if the surveys were done of tag recipients afterwards, there would be nothing that would be useful that could be gathered from that process for stock assessment purposes?

MR. CARMICHAEL: No; the answer is absolutely is useful information, but that is not something the council has chosen to include in this amendment. They made a specific decision not to include it in this amendment.

DR. BELCHER: I have a question of clarification. Where it talks in the examples – and I have the document that says September 2013; but is says examples of species with low recreational ACLs. The first example the snowy grouper, recreational ACL is 523 fish and harvest is limited to one per vessel per day. If you have a recreational fisherman that gets a tag and goes out on a headboat; does that mean that the headboat can only bring – who is going to determine if ten people make a run for the coast to go get their snowy grouper who gets the fish?

DR. ERRIGO: Under a tag program, however many tags you get for snowy. If there are ten people with a tag on the headboat, ten snowies are harvested.

DR. BELCHER: That's why I wasn't sure, because like I said in reading that I'm reading it as one per vessel per day, so what defines a vessel in the sense of is that personal vessel? Is that charterboat, headboat? I would assume under a tag thing that, yes, if you had 20 people on the boat and each of them had a tag, they would all get it. But by the way that is stated there, it almost infers that only one would be allowed to tag.

MS. BROUWER: Yes, that is the current regulation and so that would change. That would have to go away.

MR. WAUGH: I think it would be helpful to understand that it isn't that the council doesn't see the utility of other data or wouldn't want other data. The problem the council is trying to address is that we don't exceed these low ACLs, like 500, and whatever it is, 30 fish. The roadblock we're facing is the agency doesn't have any money to administer this, period.

What the council is doing is stripping this down to bare minimum; and in fact we hope at this upcoming meeting that they will strip it down even more just to the four species that have extremely low ACLs now and worry about expanding it in the future if we can get it off the ground. There is no guarantee this is going to fly, because the agency doesn't have any money. The council is going barebones just to be able to limit our ACLs. Our concern is we can't continue to blow these recreational ACLs indefinitely.

DR. BARBIERI: Thank you, Gregg; I think that made a difference when you presented it like that; to understand that it is not that the thought process hasn't come up or that the discussion of those issues hasn't been there and that staff or the council really may not be seeing those opportunities for data collection; but it is basically an issue operationally how to fund this. Getting it off the ground would be a plus; and maybe there are opportunities for enhancement for the program in the future.

MR. COLLIER: To that point; when they are sending out these tags, they could put information in there to possibly report your tagged fish to an application like iSnapper or some other application that has already been developed and could potentially hold the information. It is just a matter of getting up with those programs and seeing if they would be willing to house the data.

Another option trying to figure out what species to include for this tagging program; it could be based on how the expansion affects your number of fish. A lot of us don't feel all that comfortable for some of these deepwater species and getting these really spiky levels in landings and looking at that expansion as opposed to a PSE.

DR. BARBIERI: Are there any other questions, comments or concerns for Myra? Myra, thank you very much. Looking at the timeline for this, you said this would go before the council now in December, right? Okay, thank you.

MR. CARMICHAEL: There is not a whole lot left to be taken out of it, so maybe some of this will move forward.

DR. BARBIERI: Okay, looking back at our agenda, we have our council work plan update and a few fairly quick items.

MR. CARMICHAEL: I think this is relatively brief. This is really an informational topic so that you stay abreast of all the things that are going on with the council. You've got the work plan overview, and then something relatively new that the tech staff has been doing is this amendments' overview.

It proves to be a really good document that summarizes where all the amendments were. Rather than in the past when I listed each amendment that had been going on in this, I'm just going to start giving you that, because it is going to be much more up to date and avoids people having to transfer information to a slightly different format for this.

In the past we've given you a summary of each amendment and each overview, but we'll just start giving you this now, and this will be a little more frequently updated. It just lets you know at any time what all these amendments are about and where they stand. That gets updated fairly regularly. If something changes in an amendment, these guys update it.

DR. BARBIERI: I personally appreciate that because it is good to have access to that file. You can just go back there and track progress of those amendments. To me it is a plus. It is not something that I easily keep track of; so going back and having that as a reference document has been really helpful, so I appreciate that. Is there anything else that we need to discuss regarding – I guess no commission action, right.

MR. CARMICHAEL: No, I think it is just if anyone have any questions or concerns about any of those ongoing amendments or comments to make; you can bring something up now or you can reach out to those staff people and pass them on, and it will make its way into the system.

DR. BARBIERI: Then I think we are ready to move on to other business. Do we have any issues that have been identified under other business that we would like to discuss? I don't think so. Jim, you have in the past been one of the members who have brought up issues for discussion under other business.

MR. CARMICHAEL: Do you have issues?

DR. BERKSON: I'm still here, but I don't have any issues you will be happy to know.

DR. BARBIERI: No other business?

MR. CARMICHAEL: A followup; were there any other volunteers for SEDAR 41 now that we've covered some pretty good ground? Mike, do you want to call up who we had listed, and see if anyone else has been inspired over the last couple of days to say, hey, I'd like to do that, that sounds like fun.

DR. BARBIERI: Churchill Grimes has just volunteered.

DR. GRIMES: Just for the review panel, right.

DR. BARBIERI: For the review.

DR. GRIMES: But I didn't foolishly think that it was going to be fun and all of that that you just said.

DR. BARBIERI: Church, this is kind of like George participating in person and webinar in the meeting and you are volunteering twice to the same workshop in the same capacity.

DR. SEDBERRY: Yes, if you need another person for the data workshop, I can do that.

DR. BARBIERI: Thank you, George, that would be great. Now moving on to Item Number 16, we have a review of our report and recommendations and our second opportunity for public comment. I would say let's go ahead with the public comment at this time. Are there any members of the public? Rusty.

MR. HUDSON: I guess there won't be a tomorrow morning. With regards to the blueline tilefish and snapper grouper issues, particularly historical catches, I participated in that fishery very intensely between just south of Cape Canaveral all the way up to South Carolina with regards to those fish, predominantly snowy grouper.

Our blueline tile was always a small bycatch portion of our snowy grouper whenever we were between 2 and 300 foot of depth. Those snowy groupers are small on the inshore side, but the blueline tile had a fair size all the way through. The spike that they showed in those early years was just incomprehensible for the blueline tile; it just is unbelievable.

Then to crash it as it was implied during the workshop; we didn't feel good about that. Of course, as I mentioned yesterday morning the snapper grouper standard assessment had no physical meeting, so we couldn't quite interact correctly there. We didn't even have a commercial representative until later into the process. It was just two recreational guys. It was all intermittent.

Now as a non-panelist, we can't have an open microphone and other types of things that made the webinars very difficult. That is why I'm glad we're sort of going back to the physicals, because that makes it a little better. With the catch history for snowy in that 2 to 300 foot of water, you get the little small young females, immature, on the inshore side.

Once you start getting 225 to 300, you start getting a mix of sizes in our areas off of Daytona and stuff like that. But since the 100 pound trip limit effectively put in place in '08, but we started downsizing from the 2,500 pound trip limit in '06 down to 275, '07 to 175 pounds, that became a problem because then only the people that were the closest to being able to just run out, which would be south of Cape Canaveral, Mike Errigo made that point very clear that it has flipped flopped around.

The stuff that they fish using the scientific permit that Michelle mentioned north of Cape Hatteras; well, you've already got that Gulf Stream vectoring off up there, and they consider that like, Chip, I think you said virgin stock or something. Yes, and that is so clean. There wasn't like the snowy grouper mixed with that.

You've got to go back to the south or go up to the deeper waters and depths. There are depth differences, too, with those fish up that way. They chose to exclude some of this stuff. The

recommendation I believe Steve had made about some spatial research is a wise idea. It is a no brainer. Really getting together with the people that have that history; unfortunately, some of them are no longer with us, no longer in the fishery.

Effort shift occurred in the mid to later eighties with the advent of the shark fishery. You've got to remember the idea of the bottom longline never came into place and play until about '81 for golden tile. Then it morphed into the shallow water groupers and stuff like that because you got a better price for that grouper than you ever dreamed of getting for a snowy grouper back then.

Then in '92 that was banned inside of 50 fathoms, and so you couldn't possess any of those fish. Where we had fished and I had fished in the seventies and the eighties with bandit reels, before and after the bottom longline, that bandit reel was the only way that we went to fish the offshore snowies, where there were no blueline tile, outside of 300 foot.

Generally 350 to 650 foot, we would find these various wrecks in particular from Dayton up to Georgia up to South Carolina. Those fish were all males predominantly, 35-pound average gutted. We would pull what the boat could hold, because there were no trip limits before '94, I believe. The 2,500 pound didn't count for those guys back then and we could do 8,000, 16,000 depending on the boat for snowy.

But on those snowy wrecks, some of them we'd pull 100 to 200,000 pounds across the fishing history of those particular places. Now for a quarter century plus they have been untouched. That bottom that I call the roll-down, where I was getting a little upset over Coral Amendment 8 stretching itself a little bit too far north, it got into the first five miles of an area we call the roll-down, 50 something miles northeast of Ponce Inlet.

And the only other inlet you can leave from is St. Augustine, and you've got to go 45 miles to the southeast in order to get to that region, that 2 to 300 foot. Two days in 1980, in June, I had the big 90-foot headboat steam three hours one way to go out there because of the coldwater effects that Todd was talking about encountering, which we're quite familiar with here in the summer.

They needed to get into something where they could get a fish to bite for the tourists. They filled the boat up in an hour and a half, a combination of those small mixed to medium and a couple of large snowies, blueline tiles which made up 10, 15 percent of the total catch and some porgy. Then they head back in.

By the third day the Gulf Stream had come back in, set in, and they couldn't fish because of he size reels. The history Churchill brought forward in a lot of his documents on fishing blueline tile in particular up in the seventies. The gentleman that invented the Electromates was from North Carolina, and his son, of course, we've met. I forget if it was here or the council meeting he showed up.

The reality of fishing that depth; you've got to have a pretty big reel. The Electromates are equipped with just that. Down our way, since 1951 we use a small reel called a Pin 65, which we still use to this day. Once you get past 2, 250 foot of water, you are already at the end of your string at that depth with no current. Otherwise, you get current you can't tend the bottom. Those

types of things, it would have been really great to have educated the analysts a little bit better on all of that. I got that off my chest. Amendment 22, I mentioned yesterday.

DR. BARBIERI: Let me interrupt you for just a second, Rusty. Those issues perhaps we could summarize as concerns regarding the lack of proper input from industry and stakeholders to those assessments, blueline tilefish and snowy grouper – well, actually not snowy, because snowy was a standard. It was blueline tilefish that you felt that representation from stakeholders was not satisfactory.

MR. HUDSON: And the inputs in the model had assumptions about the history that we had collapsed the stocks when we had an effort shift; an effort shift into other fisheries for the different variety of reasons. I call it the glitter of gold; because once the price of the shark fins started becoming a big deal along with a steady price on the shark meat that we had helped develop with NMFS encouragement, mind you in the early to mid-eighties on, until we got the management plan in place; but then we have another factor that is not even being considered.

The fleet size is so much different. Even though we may have become more efficient – and they keep on talking about the GPS, the video monitors, and all the other types of equipment; you've still got to have infrastructure. You've got to have commercial boats that are able to go and go to those places and catch those fish and then be able to be part of a market.

A lot of people that were in the business are gone, dead or whatever. The same thing with the wreckfish, that occurred, too. Some of the best highliners my granddad ever trained all through those periods, they're dead and or some of the boats sold and moved on. There is a lot that when we see the results of some of this modeling, we scratch our head and we know that it is not reflective of the facts as we know them and the truth as we have groundtruthed it as we know it.

That is why I gave all this help that Todd mentioned to NMFS, MARMAP and got other people to do the same thing. Why; so they could groundtruth what we already know. Site fidelity is a big deal when you get into the concerns over the Kitty Mitchell and the warpig, in other words, speckled hind and Warsaw grouper.

Those animals also have been from no sale all of this time. I know catch-poor data is a big deal, because we have 70 something species of snapper grouper that we have to deal with. Now with Amendment 22, this recreational scenario, you have a site issue, a localized situation. If you're going to want wreckfish with tags, there is one place to go as the recreational.

That is going to be the Keys, South Florida. You are not going to Blake's Plateau in a charterboat and go and catch whatever with a tag for a wreckfish. It is just not going to happen as a normal rule. The only other two places dealing with golden tile and snowy grouper for your tags is going to be south of Cape Canaveral, because, remember, who is going to want to travel 35 to 55 miles when you can go 15 to 20-something miles and be able to get to the shelf breaks and that mud bottom to be able to fish one of those two species?

The other spot is North Carolina, south of Cape Hatteras where you can get into the snowies, and you can get into some of those golden tiles Jeff Odon can show you. There are pictures of 40 something pounders and 50 pounders; the same deal with the big snowies up that way. We have

a problem there. This Amendment 22 has been batted around a lot, and it has gone through a lot of abuse in the sense of scaling it down.

I like the information thing; but John makes a great point, what are you going to do with it? Always the big problem has been whether it is MRFSS or MRIP – and I'm seeing problems with MRIP that resemble MRFSS. Just like Dick Brame from the CCA-North Carolina says that stuff wasn't designed for this assessment modeling in a way.

There is a lot of assumption and uncertainty that goes in with that component, the recreational. The last thing I'm going to mention is the Regulatory Amendment 17, which is the MPA stuff. I thought that we were going to have a discussion on that at this meeting, but I guess not, because that has still got to move forward in some ways, and there are some situations that we'll see how it goes. We were supportive of modifications and reorientation.

That was a no-brainer, Type 2s. In other words, there will still be some fishing and some people can do some transits; the rules that are in place. As I mentioned yesterday morning, the failure of research and monitoring in Amendment 14 is something we should never let happen again, including in this Regulatory Amendment 17.

If we do, and "we" is state by state by state by state – and South Carolina is looking like a big bulls eye is right in front of their inlets – we need to make sure that people are comfortable with it, because the comfort level of 29 new areas or whatever it is in those ranges, because it varies, is something that is a little worrisome.

If like Ben and some others suggested, maybe one here, one state; one here, another state, et cetera; that is four states, four new places. Then let's see where we're at, because I like the fact that last year and this year we got the vessels out there. Whether they can catch or not, because we're not using the 20 hook as much as we needed to – Marcel and I have talked about that – we're not able to use the longline as much as we need to in certain places, because that roll-down, Marcel, is a great area to stretch that 200 to 300 foot up there around the Flagler/Volusia County Line.

It is a great place to stretch some of that 100-hook bottom longline and be able to get something going, but you've got to have funding in order to do that kind of work; and/or we do CRPs with people that know the fishery. Pretty much that's it. I just think that this was a good meeting in a lot of ways. I came away learning some stuff; so thank you.

DR. BARBIERI: I guess no other members of the public are going to provide comments, so we can proceed to review some of our report recommendations and notes.

DR. ERRIGO: Okay, the first topic today was the blueline tilefish assessment. You guys felt that there was sufficient information to go ahead with the review since there was a full SEDAR Review Panel that was convened. We did that and came up with a P-star value. Initially we came up with a P-star value based on the definition of MSST as 1 minus M times SSBmsy, which is what is in the assessment itself, which gave us stock status of overfished and overfishing is occurring. That P-star came out to be 0.275; it required rebuilding so the P rebuild was 72.5 percent. Then the SSC discussed modifying the definition of MSST to instead be 75 percent of SSBmsy.

Upon calculating that MSST, the stock status determination changed to not overfished but overfishing is still occurring, so the P-star value shifted again to a P-star of 0.3. Since the stock is not overfished, rebuilding is not necessary, so I did not calculate a P rebuild. The SSC accepted the Review Workshop recommendation of using the deterministic model base run for stock status determination and the probabilistic MCB projections for a catch-level recommendation.

DR. BARBIERI: Those probabilistic projections are to be provided.

DR. ERRIGO: That is right. We do not have the updated – well, when we just got the P-star value here, so we obviously don't have any projections with P-star values; and also the Review Workshop recommended that projections be run with actual 2012 landings, which have not been completed yet. They will be completed and I am assuming provided for the December council meeting.

I just started to fill in this table, but now the council level current accepted MSST is 1 minus M times SSBmsy. The council, if they so choose, will have to change the definition or not of MSST, and then all the appropriate values can be filled in. Since we don't have any projections, I am unable to fill in any of the projected landings or discard information for catch-level recommendations.

Also the SSC recommended an evaluation of the stock structure of blueline tilefish in relation to how multiple stocks might affect the assessment process for this species. It was requested an evaluation of using age-structured versus biomass dynamics models for this particular species. However, it was noted that since the BAM model has already been built for this species and parameterized, it may be more efficient to simply use it in the future; but that we shouldn't just drop the biomass dynamics models for this particular species. That was the final point on the blueline tilefish discussion.

DR. REICHERT: I think because of one of the specific questions is a recommendation as to a next update or benchmark or standard; didn't we discuss that, that would then be folded into the long-term plan we had? I even remember that we actually discussed like three years, maybe? Refresh my memory.

DR. BARBIERI: I don't think we discussed a number of years. I thought that the timing we thought would be provided through that framework document.

DR. ERRIGO: Also the discussion of the stock's structure, depending on how that evaluation goes, might determine whether the next assessment is an update, standard or benchmark, because if it turns out that they are actually separate stocks. it may require benchmark. Then again it may simply need just an update or at least a standard because of the new video survey.

DR. REICHERT: I don't think we have any data on blueline. I'm pretty sure we don't in the new video information.

DR. ERRIGO: For snowy grouper, the SSC recommended not continuing with the review since no one from the analytical team was available to go through the assessment with the committee; and also there was no prior review as was the case for blueline tilefish. The SSC requested that

this review be postponed until the April 2014 meeting. There were no actual recommendations or anything from the data-poor approaches. That was just discussion and presentation.

The PSA and ABC Control Rule; there was a lot of discussion there. The discussion started out on just looking at the PSA, whether it would be appropriate to use MRAG or the NMFS PSA approach. It was discussed why MRAG had been chosen in the past, about there being some overlap in some of the factors that NMFS looked at.

A suggestion was made that perhaps the MRAG PSA could be looked at in a data workshop for a particular species in order to update any of the attributes that may have changed over time, or that we may know now that we didn't know previously. There was a suggestion of the evaluations of the performance of our ABC Control Rule, the P-star and the use of the PSA.

Then the discussion moved towards that perhaps a lot of the attributes within the PSA are already considered in the Tier 1 stock assessment. Productivity and several of the attributes that are considered under susceptibility are already looked at in Tier 1 stock assessment, and perhaps the PSA is not appropriate to be used in a data rich or Tier 1 stock; and perhaps more appropriate to be used for data-limited stocks, those that fall under Tiers 3, 4 or 5 or 4 of 5; and that perhaps it should be moved from the Tier 1 stock.

Then it was talked about, well, if we're going to remove it just from Tier 1 or from the upper tiers, then perhaps a modification of the tier system is appropriate and that this system of calculating the P-star should be tailored to each tier, which moved us into a discussion of the revamping of the ABC Control Rule as a whole.

That is when the SSC recommended a reevaluation of the ABC Control Rule by a smaller committee or working group with focuses on the PSA; why to keep, move or modify it; revamping of the tier system perhaps to be more tier-specific allowing more refinement in each of the dimensions; how the weighting of each of the factors within the dimensions of the control rule should be, with a goal of trying to make the control rule more inclusive of all the tiers; with a timeline of coming back for this group to hopefully meet sometime for October 2014 or for this to come back in October 2014, but that planning for this will be revisited at the April 2014 meeting. A smaller organizing committee was put together. Steve Cadrin, Luiz and Marcel volunteered to help organize that in order to get together how –

DR. BARBIERI: I don't know if Jim is still on, but I think that Jim has also volunteered to participate in this working group.

DR. BERKSON: Well, actually I am still on and I can't commit to that at this time, but thanks for thinking of me.

DR. BARBIERI: I just wanted to make sure you felt included Jim.

DR. ERRIGO: Ultimately this would be similar to the New England process that is currently going on and would include people from the Science Center, Regional Office, SSC members as well as any outside scientist or perhaps stakeholders, people who might be interested in helping out in this procedure. Does that capture the discussion under ABC Control Rules? I kind of zipped through that.

DR. BARBIERI: Absolutely. I'm not sure, to tell the truth, whether for our report I would even go into that much detail. I think that we discussed several aspects of the ABC Control Rule, starting with the PSA and then discussing other issues. Finally, we came to the conclusion that this will have to be looked at in more detail through a dedicated working group or a committee. That will be addressed, as you pointed out. I think that is plenty; thank you.

DR. ERRIGO: It was hard to see the light at the end of the tunnel at the beginning of the discussion, so I just kind of took notes on everything. The next item was the discussion on Snapper Grouper Amendment 22, which was the tag program. I just put down some of the recommendations of things that people had for Myra.

I will just go over those and make sure I captured everything. A suggestion was made that as long as we collect information about who got the tags, then people can be surveyed after the fact. Useful information can still be collected not necessarily by the council or NMFS or anyone; but as long as that information is available and kept on file, then we should be able to collect useful information based on that.

The question about eligibility requirements came up; and if we're having this kind of information, perhaps we should collect some data. We should consider some costless programs for data collection, such as having a questionnaire that people fill out as part of the application process in order to get the tag.

This way is kind of a cost-free way to collect information and the data would be available for someone to analyze. It was noted that there is a potential for controversy over not having a for-hire allocation of tags. Another suggestion was to possibly issue tags for more than one year at a time.

DR. CROSSON: I thought we had come down pretty clearly against that. It was brought up, but I think the SSC fairly clearly wasn't happy with that proposal.

DR. BARBIERI: Can I suggest we didn't really think about it?

DR. MacCALL: The ACL is simply equal to the outstanding number of tags, you can't go over it. There is no averaging or anything like that to be in question. It is completely defined.

DR. BARBIERI: And to that point; this is something that we can still include. The way that would frame all of these recommendations, anyway, since Gregg clarified how the council has been working with this amendment and how the amendment has been stripped down to the bare minimum; that we understand that and we are just offering a number of suggestions in case of future implementation; a revised version of what is being implemented right now.

DR. CROSSON: As long as it is clear that we're not endorsing it; that it is a concept that is there.

DR. ERRIGO: Then there was also a suggestion for inclusion criteria of a species might be how the MRIP expansion affects catches of a particular species; meaning if a small encounter rate equals large catches simply because of how the expansion factor plays out in certain years; that was suggested.

MS. LANGE: I would just suggest that we remove SSC recommendations, because I don't think we actually had any recommendations specific to this section. This was just discussion that we had. Did we have specific recommendations? These are just discussion points; aren't they?

DR. BARBIERI: This is my question I guess for Sherry and Scott, because my understanding of that discussion is that they were bringing up a number of recommendations; and that eventually after we discussed all of this, they felt that a lot of those recommendations could not – after we understood that the council had thought about several of those but could not implement – because of funding restrictions, could not implement all of those right now; that we had agreed that still this would be presented as suggestions for them to consider for the future.

DR. CROSSON: I would say that the SSC still supports gathering whatever data can be gathered, as long as it doesn't interfere with the simplicity and the cost concerns about the tag program; that the SSC would still endorse gathering whatever information might be deemed useful for management. I think the economic data that we were discussing earlier would certainly fit those criteria.

MR. CARMICHAEL: The recommendation is just a way of separating out what was the briefing material and what was the summary of your discussion. Every section says recommendations. It may not always be recommendations technically, but ultimately it is recommendations or advice back to the council.

If that is confusing, I think for consistency, to avoid people getting confused, we should use some consistent language in there. If you want to call it discussion and recommendations, that would be fine, or SSC comments on that heading. I just don't want people to start wondering what is what when they see this report, with the way that we're doing it now.

MS. LANGE: I guess that is my point. I agree with Scott. I think we all agree that if there are opportunities to collect the data, that we would recommend doing that; but this section in particular to me seems to be less recommendation-specific. Other ones, they are actual recommendations that the committee has that are captured under that title. I think just making some sort of additional header in there like the committee discussed this and we recommend any opportunity to collect data be taken advantage of; or something.

DR. ERRIGO: When the SSC makes a specific recommendation, such as you recommend using a stock assessment report for management, I actually write the SSC recommends using this or the SSC recommends using that. I will put in a header here just to make it clear that these are suggestions for how perhaps the council may want to proceed with this, perhaps ways of collecting data without costing any money.

But I do try to make it clear that if the SSC is making a consensus recommendation such as here is what we think P-star value is, we think you should use this assessment for management advice; I try to clearly state the SSC recommends this; but I'll put in a heading just to clarify that these points are suggestions for discussion. They may want to be considered for this amendment.

DR. CROSSON: I was just going to say the overview document lists the action items for any particular piece that is up before the SSC. The one that is listed here about providing guidance to

the tag program and so we're just providing guidance, and it can be discarded at the will of the council.

DR. BARBIERI: I think this completes the SSC-specific comments. We had an informational overview of the council work plan and update on that item. Then we proceeded to some of the other issues. I don't think we have really specific notes that we need to further review. Our final SSC report should be provided to the council by Tuesday, November 12th, for inclusion in the first briefing book.

Just to give you some guidance there, some idea of what date we're shooting for, I'm going to take advantage of tomorrow morning and try to put together as much as I can of the summary. I'll probably be done, all completely done tomorrow and e-mail that to all of you. I appreciate you guys taking a look. In that e-mail that I distribute, I will give you a specific deadline for submission of your comments and revisions.

But since the meeting is ended early, I think we are going to have plenty of time to have our report ready ahead of schedule with plenty of opportunity for review and revisions. Our next meetings are scheduled then in 2014; tentative dates are listed April 29 through May 1st; and October 28th through the 30th.

I would appreciate if you would mark your calendars with those dates to make sure that you have the opportunity to attend. Be advised that for the April meeting, we are discussing the inclusion of one additional day right now tentatively for that workshop or working group meeting for discussion of the SEDAR planning.

DR. CROSSON: My understanding is it is also a consideration that the SEP might be meeting in April?

DR. BARBIERI: Yes, we're going to have to look at that week and start planning dates accordingly. The idea is to have the SEP meeting as well as the workshop or working group to look at the SEDAR planning, and maybe they will overlap. The December council meeting is scheduled for December 2nd through the 6th in Wilmington, North Carolina.

Then we see the list of council meetings for 2014; but just for your information on the December upcoming meeting, because usually Mike sends us the e-mail giving us the opportunity to listen in through webinar and follow up on the meeting discussions, and, of course, I'll be presenting our report to the council. That will be a good time for you to be listening in during that presentation. With that, John, I will pass the ball back to you before we adjourn to see if there are any other comments or issues that you want to bring up.

MR. CARMICHAEL: Nothing else that I have; I think that about does it. I don't know what will be on the agenda for April. We will have a couple things rolling over and a number of stock assessments, so I expect it should be a pretty full meeting.

DR. BARBIERI: I think we are pretty much ready to have the meeting adjourned. Again, many thanks to Mike Errigo for the very complete, thorough notes. It really helps, I can tell you. As the person who has to compile all the notes and sort of structure that report, it is a big help to have your notes.

They are really good. Thanks to staff for all the guidance, all the documents that have been prepared and all the help in organizing and conducting the meeting. Would anybody have any additional comments or questions before we consider the meeting adjourned? Jim, I'm sorry you are not going to be able to join us for that, but we'll be thinking about you. I guess the meeting is officially adjourned.

(Whereupon, the meeting was adjourned October 23, 2013.)

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South Atlantic Fishery Management Council
Scientific & Statistical Committee

Dr. Luiz Barbieri, Chairman
FL FWCC/FMRI
100 Eighth Avenue SE
St. Petersburg, FL 33701-5095
727- 896-8626 ext. 4920 (ph)
luiz.barbieri@fwc.state.fl.us
3/08*

Dr. Marcel Reichert, Vice-Chairman
SC DNR/Marine Resources Division
PO Box 12559 (217 Ft. Johnson Road,
Charleston SC 29412)
Charleston, SC 29422-2559
843/ 953-5778 (ph)
ReichertM@dnr.sc.gov
3/08*

Dr. Carolyn Belcher
GA Department of Natural Resources
Coastal Resources Division
One Conservation Way, Suite 300
Brunswick, GA 31520
912/264-7218 (ph); 912/262-3143
Carolyn_Belcher@dnr.state.ga.us
12/01*

Dr. James M. Berkson
NMFS RTR Program
PO Box 110240
University of Florida
Gainesville, FL 32611
352/294-0887
Jim.Berkson@noaa.gov
6/10*

Dr. John Boreman, Jr.
23 Covington Lane
Durham, NC 27712
919/768-7198 (ph)
John.Boreman@ncsu.edu
6/09*

Dr. Jeffrey Buckel
Department of Zoology
Center for Marine Science and
Technology
North Carolina State University
303 College Circle
Morehead City, NC 28557
252/222-6341(ph); 252/222-6311(f)
jeffrey_buckel@ncsu.edu
9/05*

Dr. Steven Cadrin
School for Marine Science and
Technology
UMASS Dartmouth
200 Mill Road, Suite 325
Fairhaven, MA 02719
508/910-6358
SCadrin@umassd.edu
6/10*

Chip Collier
NC Division of Marine Fisheries
127 Cardinal Drive
Wilmington, NC 28405
910/796-7292 (ph)
chip.collier@ncdenr.gov
6/09*

Dr. Scott Crosson
NMFS SEFSC
75 Virginia Beach Drive
Miami, FL 33149
305/361-4468
Scott.Crosson@noaa.gov
3/08*

Dr. Churchill Grimes
NOAA Fisheries, SW Fisheries
Science Center
110 Shaffer Road
Santa Cruz, CA 95060
831/420-3931
churchill.grimes@noaa.gov
6/10*

Dr. Yan Jiao
Dept. of Fisheries and Wildlife
Virginia Polytechnic Inst & State
University
Blacksburg, VA 24061-0321
540/ 231-5749 (ph)
yjiao@vt.edu 3/08*

Dr. Eric Johnson
Department of Biology
University of North Florida
1 UNF Drive
Jacksonville, FL 32224
904/ 620-5764
eric.johnson@unf.edu
6/10*

Anne Lange
1493 Diamond Blvd
Mt Pleasant, SC 29466
843/ 971-0628 (ph)
AMLange@aol.com
3/08*

Dr. Sherry L. Larkin
Food & Resource Economics Dept.
P.O. Box 110240
University of Florida
Gainesville, FL 32611-0240
352/392-1845 Ext. 431(ph);
352/392-3646 (f)
SLarkin@ufl.edu
6/04*

Dr. George Sedberry
NOAA
Gray's Reef National Marine Sanctuary
10 Ocean Science Circle
Savannah, GA 31411
912/ 598-2345
george.sedberry@noaa.gov
6/10*

Dr. Doug Vaughan
214 Shell Landing Rd.
Beaufort, NC 28516
252/728-5259 (ph)
dvaughan1@ec.rr.com

Dr. John C. Whitehead
3094 Raley Hall, Dept. of Economics
Appalachian State University
Boone, NC 28608-2051
828/262-6121(ph); 828/262-6105 (f)
whiteheadjc@appstate.edu
6/04*

Dr. Tracy Yandle
Dept. of Environmental Studies
Mathematics and Science Center
Emory University
400 Dowman Dr.
Atlanta, GA 30322
404/727-6314 (ph)
404/727-4448 (f)
tyandle@emory.edu
6/11*

* Denotes year of appointment

South Atlantic Fishery Management Council
2013 - 2014 Council Membership

COUNCIL CHAIRMAN:

Ben Hartig
9277 Sharon Street
Hobe Sound, FL 33455
772/546-1541 (ph)
mackattackben@att.net

VICE-CHAIRMAN

Dr. Michelle Duval
NC Division of Marine Fisheries
3441 Arendell St.
(PO Box 769)
Morehead City, NC 28557
252/726-7021 (ph); 252/726-0254 (f)
michelle.duval@ncdenr.gov

Robert E. Beal
Executive Director
Atlantic States Marine Fisheries Commission
1050 N. Highland St., Suite 200 A-N
Arlington, VA 20001
703/842-0740 (ph); 703/842-0741 (f)
rbeal@asmfc.org

Mel Bell
S.C. Dept. of Natural Resources
Marine Resources Division
P.O. Box 12559
(217 Ft. Johnson Road)
Charleston, SC 29422-2559
843/953-9007 (ph)
843/953-9159 (fax)
bellm@dnr.sc.gov

Anna Beckwith
1907 Paulette Road
Morehead City, NC 28557
252/671-3474 (ph)
AnnaBarriosBeckwith@gmail.com

Zack Bowen
11 Kingsridge Court
Savannah, GA 31419
912/898-8760 (ph)
fishzack@comcast.net

Chris Conklin
P.O. Box 972
Murrells Inlet, SC 29576
843/543-3833
conklincc@gmail.com

Jack Cox
2010 Bridges Street
Morehead City, NC 28557
252/728-9548
Dayboat1965@gmail.com

Dr. Roy Crabtree
Regional Administrator
NOAA Fisheries, Southeast Region
263 13th Avenue South
St. Petersburg, FL 33701
727/824-5301 (ph); 727/824-5320 (f)
roy.crabtree@noaa.gov

David M. Cupka
P.O. Box 12753
Charleston, SC 29422
843/795-8591 (hm)
843/870-5495 (cell)
palmettobooks@bellsouth.net

LT Morgan Fowler
U.S. Coast Guard
510 SW 11th Court
Fort Lauderdale FL 33315
morgan.m.fowler@uscg.mil

Doug Haymans
Coastal Resources Division
GA Dept. of Natural Resources
One Conservation Way, Suite 300
Brunswick, GA 31520-8687
912/264-7218 (ph); 912/262-2318 (f)
doughaymans@gmail.com

John W. Jolley
4925 Pine Tree Drive
Boynton Beach, FL 33436
561/732-4530 (ph)
jolleyjw@yahoo.com

Deirdre Warner-Kramer
Office of Marine Conservation
OES/OMC
2201 C Street, N.W.
Department of State, Room 5806
Washington, DC 20520
202/647-3228 (ph); 202/736-7350 (f)
Warner-KramerDM@state.gov

Dr. Wilson Laney
U.S. Fish and Wildlife Service
South Atlantic Fisheries Coordinator
P.O. Box 33683
Raleigh, NC 27695-7617
(110 Brooks Ave
237 David Clark Laboratories,
NCSU Campus
Raleigh, NC 27695-7617)
919/515-5019 (ph)
919/515-4415 (f)
Wilson_Laney@fws.gov

Jessica McCawley
Florida Fish and Wildlife Conservation Commission
2590 Executive Center Circle E.,
Suite 201
Tallahassee, FL 32301
850/487-0554 (ph); 850/487-4847(f)
jessica.mccawley@myfwc.com

Charles Phillips
Phillips Seafood / Sapelo Sea Farms
1418 Sapelo Avenue, N.E.
Townsend, GA 31331
912/832-4423 (ph); 912/832-6228 (f)
Ga_capt@yahoo.com

Rusty Hudson
Dr. Erik Williams
Tom Carruthers
Alex MacCall

South Atlantic Fishery Management Council
Staff

Executive Director
Robert K. Mahood
robert.mahood@safmc.net

Deputy Executive Director
Gregg T. Waugh
gregg.waugh@safmc.net

Public Information Officer
Kim Iverson
kim.iverson@safmc.net

Fishery Outreach Specialist
Amber Von Harten
amber.vonharten@safmc.net

Senior Fishery Biologist
Roger Pugliese
roger.pugliese@safmc.net

Fishery Scientist
Myra Brouwer
myra.brouwer@safmc.net

Coral Reef Scientist
Anna Martin
anna.martin@safmc.net

Fishery Biologist
Dr. Mike Errigo
mike.errigo@safmc.net

Fisheries Social Scientist
Dr. Kari MacLauchlin
kari.maclauchlin@safmc.net

Staff Economist
Dr. Brian Cheuvront
brian.cheuvront@safmc.net

Science and Statistics Program Manager
John Carmichael
john.carmichael@safmc.net

SEDAR Coordinators
Dr. Julie Neer - julie.neer@safmc.net
Julia Byrd – julia.byrd@safmc.net

SEDAR Admin/Outreach
Andrea Grabman
andrea.grabman@safmc.net

Administrative Officer
Mike Collins
mike.collins@safmc.net

Financial Secretary
Debra Buscher
deb.buscher@safmc.net

Admin. Secretary /Travel Coordinator
Cindy Chaya
cindy.chaya@safmc.net

Purchasing & Grants
Julie O'Dell
julie.odell@safmc.net

PLEASE SIGN IN

So that we will have a record of your attendance at each meeting and so that your name may be included in the minutes, we ask that you sign this sheet for the meeting shown below.

Scientific & Statistical Committee Meeting:

Tuesday, October 22, 2013

NAME & ORGANIZATION	AREA CODE & PHONE NUMBER	EMAIL ADDRESS	P.O. BOX/STREET CITY, STATE & ZIP
Rusty Hudson JEA	386-239-0948	JEA2009@aol.com	POBx9351 32120-9351
TODD KELLISON SEFSC	252.838.0810	todd.Kellison@noaa.gov	101 PIVERS IS. RD., BEAUFORT NC 28557
Peter Barile SFA		abaco711@hotmail.com	
Doug Vaughan	252-728-5259	dvaughan1@ec.rr.com	Beaufort NC

South Atlantic Fishery Management Council
4055 Faber Place Drive, Suite 201
North Charleston, SC 29405
843-571-4366 or Toll Free 866/SAFMC-10

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Scientific & Statistical Committee Meeting:

Wednesday, October 23, 2013

NAME & ORGANIZATION	AREA CODE & PHONE NUMBER	EMAIL ADDRESS	P.O. BOX/STREET CITY, STATE & ZIP
Rusty Hudson JSA	386-239-0948	JSA2009@aol.com	POBX 9351 32120-9351
Liam Carr	843.819.8169	lcarr@pewtrusts.org	PO 609 29402
Alec MacCall	831-420-3950	alec.MacCall@noaa.gov	
David Neumann	917 657 1215	dneumann@nrdc.org	
Tom Carruthers	604 805 6627	t.carruthers@fisheries.ubc.ca	
Doug Vaughan	252-728-5259	dvaughan1@ec.rr.com	

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