SOUTH ATLANTIC FISHERY MANAGEMENT COUNCIL

SOCIO-ECONOMIC PANEL OF THE SCIENTIFIC AND STATISTICAL COMMITTEE

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SUMMARY MINUTES

Socio-Economic Panel Members
Dr. Scott Crosson, Chairman
Dr. Jennifer Sweeney-Tookes
Dr. John Whitehead
Dr. Tracy Yandle

Council Members
Stephen Poland

Council Staff
Gregg Waugh
Dr. Chip Collier
John Hadley
Christina Wiegand
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Observers and Participants attached

The Socio-Economic Panel of the Scientific and Statistical Committee of the South Atlantic Fishery Management Council convened at the Town & Country Inn, Charleston, South Carolina, April 8, 2019, and was called to order by Chairman Scott Crosson.

DR. CROSSON: We are going to start now. This is Scott Crosson, and I am the Chair of the South Atlantic Council's Socioeconomic Panel. We're going to begin our meeting here, and it's a rather small room today, but hopefully some other folks will be calling in. The first thing we have on our agenda is to review and approve the agenda, and one of the things that I wanted to talk about is I always need help writing up the committee's report, and so, going through the agenda items -- I'm hopeful that Chris Dumas is going to call in for part of this.

Going through the agenda items, these are some of my thoughts, based off of what I know that people have experience or expertise in. I think, with recent and developing council actions, that we already can rely on council staff for that. I don't think that will be too long of a discussion. For the third item, which is the system management plan, socioeconomic action items, I am willing to sort of take the lead on writing up that section. The one beneath that -- I guess maybe would should stop for a second. Can Chris and Jim both check in? Are you able to hear, and can we hear them?

DR. DUMAS: Hi, folks.

DR. CROSSON: Hi, Chris. Okay, good, and so I'm glad that you're here. So I'm doing the one that is the system management plan items, and the next one is the ABC control rule amendment. Chris, are you going to be able to be on the webinar throughout the afternoon here? Can you potentially take the lead on writing up this section?

DR. DUMAS: Yes, but which section?

DR. CROSSON: All of them, Chris. You agreed to all of them. No, to the one on the ABC control rule, which is good, because you're also on the SSC, and, since this is an SSC item as well, it would be useful to have somebody from that organization on it.

DR. DUMAS: Got it.

DR. CROSSON: After the ABC control rule, we have recreational accountability measure modifications, and, to that one, I would like to assign John Whitehead, since he is our recreational fisheries expert. For the technical memorandum on the economics of the commercial snapper grouper fishery, I'm going to assign that one to Tracy, because she's also been assigned that by the Chair of the SSC, and so, that way, we know she really will be paying attention.

For the fishery performance reports, I was going to assign that one to Jennifer, if that was okay, and then I have one more, and that is the my MyFishCount,, and I could throw that one to John again, but that might be kind of cruel, but he'll be here, and he'll be paying attention, and maybe we'll help him a bit on that one.

DR. WHITEHEAD: That one looks like it would be easy to write up, right, and it's just results?

DR. CROSSON: Yes, and that's an easy one, and so you can write up that one. Everybody is clear on that? That sounds like a reasonable workplan. All right. So, getting back to the agenda, the next item we have on there is do we all approve the agenda? Does anybody have any big disagreements with it? All right. Everybody has read the February 2018 minutes from the last meeting, in-depth, and is there corrections that anyone has to make to that? Okay. Then we're done with that.

At this point, I guess I'm going to go around the room and -- Is there anybody that I should be introducing in addition to the members of this esteemed panel? Okay. Then we'll start with Jennifer, and we'll go around and identify ourselves for --

DR. SWEENEY-TOOKES: Jennifer Sweeney-Tookes, Georgia Southern University.

DR. WHITEHEAD: John Whitehead, Appalachian State University.

MR. HADLEY: John Hadley, South Atlantic Council staff.

MS. WIEGAND: Christina Wiegand, South Atlantic Council staff.

DR. CROSSON: Scott Crosson, NOAA's Southeast Fisheries Science Center.

DR. YANDLE: Tracy Yandle, Emory University.

DR. CROSSON: Jim and Chris are on the webinar, and so I think we're okay on that. I guess, at this point, we have the opportunity for public comment. Do we have any public comment? I don't see anyone from the public here, and so I don't think so. At this point, I'm going to hand it over to John for recent and developing council actions.

RECENT AND DEVELOPING COUNCIL ACTIONS

MR. HADLEY: I will go over a few of the recent developing council actions, and then, after that, we'll also get a briefing from John Carmichael on just an update on the Citizen Science Program and where that stands at this point, but what's been included in your overview is just a few of the recent council items that have passed.

To begin with, I will just briefly go through them. There is Vision Blueprint Amendment 26, which implemented several of the items that came out of the visioning process to support the snapper grouper fishery, and, really, what this ended up looking at is changing some size limits, specifically for some deepwater snapper species, as well as gray triggerfish. Also, it's looking at modifying the twenty-fish aggregate bag limits, and so different sections there, and one of the major pushes for that was looking at ways to simplify regulations and make it a little bit easier to follow.

Looking at Regulatory Amendment 27, this was the commercial component to that, to the visioning process, and so this looked at changing several different split seasons and trip limits in the commercial snapper grouper fishery, and, really, there were several driving social and economic reasons here, looking at ways to sort of spread the resources, so to speak, so that

everyone in the region gets a shot at it, but this was recently implemented, or recently sent to NMFS, in January.

Moving on down, there is sort of a -- Kind of picking up where we left off last year, and, if you will remember, we discussed red snapper and sort of the human components to that fishery, and, really, this was being looked at from the red snapper ACL and then looking at different other recreational components, such as recreational permitting and reporting, and it was kind of a catch-all, looking at removing powerhead restrictions and then looking at implementing best fishing practices. This was a fairly large amendment, and it's been split off. Amendment 43 went through last year, and that just looked at the red snapper ACL, and so that's gone on through.

Then Amendment 46, which had that, there again, that catch-all with reporting and permitting and then some of the best practices, was split into two different amendments, one pulling out the reporting and permitting and the other looking at the best practices, and so this was Amendment 29.

Right now, Amendment 29 looks at several different management measures for the commercial and recreational fishery, really, but looking at implementing requirements to include descending devices and also -- Well, it's basically different alternatives for potentially extending the circle hook provision or looking at whether hooks can be offset or non-offset and then hook material, and so several different -- That action is sort of ongoing at this point. Then, also, it looks at removing the restriction on the use of powerheads in the EEZ off of South Carolina, and so looking at making the regulations the same across the South Atlantic region for the use of powerheads.

Moving out of snapper grouper and into dolphin wahoo, currently, we have Dolphin Wahoo Amendment 10, and this amendment has been around for a while in various different forms, and the council looked at developing this amendment, looking at potential different allocations and potential ways to share ACL between the commercial and recreational sectors.

This amendment was put on hold in early 2017, largely due to the expected changes to MRIP, and so, with the major revisions that are now available to MRIP, the council is looking at taking up Amendment 10, potentially with -- There are several different items in there looking at updating the ACL, looking at various ways of implementing different sector allocations, and also some sort of nuts and bolts fishery management items, looking at potentially bag limit sales and modifying gear requirements to match HMS requirements in the pelagic longline fishery and also accommodating some gears that are not allowed in the fishery currently, and it was specifically looking at trap and pot gear, and so you have some crab fishermen, or lobster fishermen, that do catch dolphin or wahoo, occasionally, and they would like to be able to keep those specimens, and, currently, they cannot, since lobster trap and crab pot gear is not allowed, and so that's where the council stands there.

This is something that is in the relatively early stages of recommencing, and it's probably something that you will see next year, but just a heads-up that that's in development. Then, finally, Coastal Migratory Pelagic Amendment 31, and this is Atlantic cobia management, and this recently became effective, and what it did was it removed cobia from the Coastal Migratory Pelagic Fishery Management Plan, and so the management of cobia has been transferred to the ASMFC, and it's no longer under direct federal management, and, there again, that's only for the Atlantic cobia sector of that FMP, and so the Gulf stock, which management carries around part of Florida,

that's still part of the federal discussion, but the Atlantic migratory group is out of federal management. Any questions on that? With that, I will turn it over to John to talk about the Citizen Science Program and just provide a brief update.

DR. CROSSON: I just have one thing I would like to note. For the Dolphin Wahoo Amendment 10, this committee was on record for commenting on the provision when they originally banned the bag limit sales from charter captains, and so this committee, at that point, advised against that, and so it's interesting to see that the council is reconsidering that motion. I don't remember, and it was a while ago when we saw that.

DR. WHITEHEAD: Just a note that there is three John's, and we're all sitting next to each other right now, and so it might help to use last names, for people on the webinar

MR. CARMICHAEL: I am here to give you an update on the Citizen Science Program, and I guess I will start out with the Program Manager transition, which explains why I am sitting here doing this and not Amber Von Harten, who has moved on the Sustainable Fisheries Initiative or Partnership, and I always forget the third word, and that organization that she now works for in working on developing fisheries issues in Indonesia, primarily, and so it really appealed to her sense of world travel, and so we were very sorry to see Amber leave the council. She's just been a great person to work with, and she's really helped get this citizen science business off the ground.

With that said, we're also pleased to hand it over to Julia Byrd, who most of you guys know from being at the council a while and being a SEDAR coordinator and working on a lot of assessment projects the last few years, and she came to us from South Carolina DNR, and so she's got a pretty good resume of working on southeast fisheries issues, and she will do a great job in just carrying this program into the implementation phase, as we get deeper into projects and such and putting our framework into practice.

Most recently, Julia and I attended a conference in Raleigh for the Citizen Science Association, and I took part in a symposium which was focused on problem solving citizen science projects, which is a little bit different than some of the citizen science stuff goes, and a lot of it is more about collecting data and seeing where it will be used at some time in the future, but there is quite a movement to take the approach that we have, in terms of trying to collect data that's going to be useful in a regulatory framework and collecting it using citizens to do a lot of the field work and the heavy lifting of collecting the data points.

We met some great folks from like EPA and the Forest Service who are working in that same area as well as just the breadth of citizen science projects around the world, and there was folks from the Amazon working in fisheries. One of the things they mentioned to me, and we also did a symposium on our A-Teams and our projects, and, during that, they asked if we found that fishermen were hesitant to give away their fishing locations, and I was like, yes, I think that's a worldwide issue, but we met some trappers from Alberta who are using citizen science to find out information on wolverines.

It was really fascinating to talk to all of these different areas and see the challenges of working with the public and the resistance in some of the institutions to accepting data from the public are the same, regardless of your species, whether it's a fish or it's a four-legged critter or it's in America or in the Amazon. It was really great, and our A-Team folks who were there, the leaders,

got a lot out of the conference, and I think everyone came away from it with a much greater appreciation of what we've been doing and where we're heading, and so it was kind of nice to get out of fisheries once in a while, I suppose, and see a whole other world.

That was really a great opportunity also to spread the word about what we're working on, and that brings me up to the projects. We've got a couple of projects that are underway, and so we've got -- I know we've talked to various groups about this before, but we've got the scamp discard project, and we've created an app called Release, which people can use to enter information on scamp that they release, and it's very simplified and streamlined. It will collect a picture and length data, and it will record their location, and they can enter depth and some characteristics about the fish, such as where it was hooked and if it was obviously dead and if they used a release tool, like a descending device or a venting tool.

We're hoping that this is going to give us some information to better characterize the scamp discards in the upcoming assessment. There is already a lot of interest in this particular app being used for other species up and down the coast, actually, because everyone is increasingly facing this challenge of discards and not being able to characterize properly those discarded fish, because, by their very nature, you can't sample them at the dock, and so you can't collect lengths, and you can't collect ages, and you're left with a bunch of fish that are dying, but where do you put them in the assessment framework, and hopefully this is going to prove one to start getting that information, using the people who actually see the fish, as opposed to catching them and releasing them.

The other project we have, and we just got funding for this, and we're just getting started, is called FISHstory and I'm going to about that a bit more in the next slide, where we are getting data from historical photos, and then the last one that's underway is we're collaborating, and so we're working with the Nature Conservancy on a project at Gray's Reef to better understand the fishing effort down there.

I guess, in the past, there hasn't been a lot of fisheries focus, and they want to get an idea of who fishes in the Gray's Reef area and how much effort there is and what they're doing, just really the very ground level and trying to understand what's going on out there, and they're going to work with doing public meetings and trying to reach out to people and doing some surveys, through the Fish Smart program, and handing out descending devices and things of that nature, just for them to get a handle on the fisheries within the Gray's Reef.

Now I'm going to talk a bit about the FISHstory, and so here you see one of the quintessential pictures we have, and we're planning to get about a thousand of these logged in for this project, and they come from Rusty Hudson, down in Florida. His family has been involved in charter boat fishing and headboat fishing in the Daytona area for generations, and so he has just thousands of pictures in his family, and he told us at his mom's house that he found several boxes with thousands more, and so I don't think he even knows how many he has at this point, but there are pictures like this from maybe up to a dozen vessels, or possibly more, where, when the parties came in, they put the fish up on a board, and they took these pictures.

In some cases, there is fish laid out on the ground, and there is wheelbarrows full of fish, depending on the size of the group and how many they caught, but the gist of this project is to try and look at these historical pictures and hopefully figure out some information on species composition, and

then the next phase, potentially, is to start getting some length compositions for these different fish.

We are going to do it through a crowdsourcing approach on a website called Zooniverse, and this was set up initially by people trying to identify star photos and find galaxies, and I think it was a grad student of someone working on this, and they realized that it would take them their entire career just to go through the pictures, and so they created this tool where people can go online collaboratively and identify things in photos, and it's set up with -- You have an opportunity to do training. You can have multiple people look at the images, and you can provide expert oversight to verify what people are saying, but, if you go to the website for Zooniverse, there is like ninety projects that are underway now, and a lot of them are like game cameras from like Africa, photo safari things, and you can go and say, do you see a zebra in the picture and that sort of thing.

What we're going to do is set this up and try to get people to be able to identify the different fish species. Now, they are mostly black and white, and so it might be hard to tell some of the snappers apart, but certainly you can see that there is snappers in the picture, and there is mackerels, and small kings and big Spanish may be a bit of an issue, but those are all things that we'll work through with a group of experts to develop some of the real identification keys, but the general gist of this is to use crowdsourcing, so that anyone that is interested can go onto this website and just start analyzing fish photos, which really is going to be a great way to get through all of this and maybe finally -- This has been talked about, and these pictures have been known, for probably going on ten years and just trying to find a way to get it funded, to get somebody to do the analysis.

I think ever since someone, McClanahan or someone, who published a paper about looking at goliath grouper in the Keys, and they looked at photos and newspaper records back in the 1950s, and I think that was published ten or fifteen years ago, and so that sort of set this off, and we're hoping to finally build on that for our pictures, and, eventually, this could expand. We're having these Daytona pictures now, but there's no reason that this couldn't expand up and down the coast, and it's just a matter of getting the photos up there and finding people that are interested to go through them.

What we're seeing with this is filling in the historical data gap, and I like to say that we're extending the time series backwards, and that's sort of the logic of what we're doing. We have the headboat survey starting in the early 1970s, but a lot of these are long-lived, slow-growing fish, and they had already been exploited, and what was the species composition of what they were catching in the 1950s, and how did it change by the 1970s, when we started actually monitoring it, and so I think that could be some really interesting information, and then we're looking at now putting in -- We're going to try to do length analysis for one species, and we're looking at funding it, and we're barely getting it started, but that's how these cycles work for a second year, to get more length analysis and possibly look at new species.

One of the things we've been thinking about with you guys is if you had pictures like this, and we know the captain, and we know the date, I don't know if we can get accurate -- I would have to check with Rusty on things like how many people were on the party, but is there -- If you look at anything like this, does anything stand out to you as any sort of social and economic characteristics that could be gathered?

I mean, we really didn't think of anything, and nothing came to our minds in looking at it, but we thought that it might be good running it by you guys, knowing the kind of information we have, and do you see any sort of social or economic traits that might come out of this, and maybe we could help better understand that fishery, going back twenty years before we collected data? I know that's kind of a tough thing to throw out, and so, if you mull it over and think of something, just keep that in mind as something that we're interested in with you guys.

DR. YANDLE: One possibility is, assuming the pictures are accurate about who was actually on the fishing trips, is we hear a lot about -- We hear a lot of talk about the decline of interest in fishing among young people. You might be able to use this to test that out, have there been changes in the ages of people even just under eighteen or over eighteen over time.

MR. CARMICHAEL: Yes, that's a great point. I knew you guys would come up with something. When you said that, I was thinking that you also have male versus female.

DR. SWEENEY-TOOKES: I actually wanted to add that this is not my area of specialty, but there are historians who read photographs for class and socioeconomic criteria, and so you might actually want to reach out to some historians in that area and see what sorts of materials they could share as well.

MR. CARMICHAEL: Yes, and I think that would be really interesting. Excellent. Well, thank you, and, like I said, if you have more thoughts like that, pass them our way, for sure. This is kind of a pilot of this, but we're hoping this becomes more of a long-standing project.

DR. SWEENEY-TOOKES: This might be where you're already going with this idea, but I love this idea, and I think that, by recruiting through universities and professors and biology classes and social science classes, you could have quite the army of students to look at these photos for you, which is probably what you're already thinking.

MR. CARMICHAEL: Yes, that is what we're thinking, to reach out to the community that we know, and what we learned from the Zooniverse people -- Because, when we were at that conference, we did training with the folks who created that, and they said it's just amazing the people around the world that just will actually try and analyze these pictures too, and they were like, so don't think that you're just looking at folks within your kind of circle of influence, and you will really be surprised, but we're definitely going to start there, within our community.

DR. YANDLE: I think both Jen and I have undergraduate students who are dying to get opportunities to do hands-on research, and, if we could have some of these either scanned, or just have access to the pictures, and develop a protocol for them to go through it, I could just have them -- Probably both of us, with different student volunteers, could just have them, five hours a week, just sit and processing photos and put them in the database.

MR. CARMICHAEL: Stuff like that would be great, and that's the -- Actually, the Zooniverse thing kind of -- It handles the data management of it, and you build the protocols on there as different jobs, and so we could do like a demographics job, which might fit right up in the alley of you all's students, and so we've sort of thought about this, that we could have different levels. We could have just a fish ID job, and we might have a length composition job, and that's the way they set it up, and you can have multiple jobs with each picture, and so we could have say the -- To try

to look at the socioeconomic aspects, the demographics job, and the data would all be right there, and you would be able to access it. Cool. Great. We'll keep you guys posted, for sure.

Then just the final, and Julia Byrd is the contact now, with her email and phone number, and we have a webpage devoted to this on our website, which we're continually updating with the latest and greatest, and so I appreciate the excellent suggestions. Thank you.

DR. CROSSON: Thank you, John. Is there any other comments from the committee on any of the council actions or on the citizen science material? All right. Then we'll move to the next agenda item, which is Chip Collier.

SYSTEM MANAGEMENT PLAN SOCIOECONOMIC ACTION ITEMS

DR. COLLIER: Thank you, all, for your time. What I am going to be presenting today is some excerpts from our system management plans for the spawning special management zones, which were created in Amendment 36, and also the deepwater marine protected areas, which were created in Amendment 14.

What these system management plans are, they're essentially evaluation tools that the council is going to use to see how effective they're doing in managing some of these offshore sites. Within there, we want to look at some of the socioeconomic data, or some of the socioeconomic information, and so we developed some goals and objectives for each one, and so we're going to start off with the spawning special management zones and looking at the goals and objectives there, and I believe there were five goals.

If you concentrate on Goal 3, that is probably the one that is most pressing to you guys, where it's looking at some of the social and environmental awareness and knowledge about the spawning special management zones. We recognize that, because of the size of these areas, generally around two square miles, it's probably going to be very difficult to get any economic information for those areas, but potentially we could get some of the social and environmental awareness and knowledge about these areas.

Under Goal 3, we had three objectives, which was to increase the public's level of knowledge, to enhance and strengthen stakeholder participation, and then enhance and maintain existence values of the spawning SMZs. That is all we had for the spawning special management zones. Do you guys think we should try to go down the way of focusing an objective, and goals maybe, on economic information? Are there additional social or environmental awareness things that we should be looking at, as far as goals and objectives?

Then, underneath this, a little bit further, we have specific action items for the areas, and there were four action items for this, and I am not going to read through them, but you can look at it. The first one is collect baseline social and economic data, and the second one is develop techniques to track the public's knowledge, and the third one is maintain stakeholder participation, and the fourth one is engage stakeholders in a citizen science program, and John just went over the citizen science program. Even though it's ranked Priority 4, we've already been working on that one.

With that, are there any recommendations on objectives or action items for these spawning special management zones that have been created? If there isn't any, is there any sources of data that you guys might be aware of that we can start looking into as we review some of these spawning special management zones?

DR. CROSSON: I am still absorbing all of this, but does anybody have any comments?

DR. WATERS: I think I understand you, Chip, correctly, but correct me if I'm wrong here. Among those four action items, two of them deal with actual economic effects, and two of them deal with perceptions of effects, and is that correct?

DR. COLLIER: Yes, that's correct.

DR. WATERS: Okay, and I think you also mentioned that estimating actual effects is a lot more difficult than estimating perceptions, and so I would agree with that, and, therefore, I think that maybe Action Items 14 and 15, which deal with perceptions, ought to be given the highest priority, unless Action 13 -- I couldn't tell from reading Action 13, but if it is dealing with amassing information that would establish a sampling universe for the perception study, then I think Action 13 would be the highest priority.

DR. WHITEHEAD: This is the first time that I have ever seen a dollar value attached to a budget item for any of these research needs, and does that mean that there is funding available, or is that just what it would cost and there is no funding?

DR. COLLIER: There is no funding. When we were developing this, it was recommended that we put these budget items in there, to give it more of a realistic flavor, and so this was my attempt at putting some values on these, and they're probably not accurate at all, but it's more of a relative scale to the other items.

DR. WHITEHEAD: I think you're correct that you could do this study for $300,000, or a study, and it does look like it would be more expensive than the others.

DR. DUMAS: What is the overlap between these SMZ areas and artificial reef areas? Is there any overlap there?

DR. COLLIER: There is a little bit of overlap, in that two of the spawning special management zones are artificial reefs that were created and not publicized, in order to act like protected areas, and one was created in the early 2000s, and another one was created shortly afterwards, and those are both protected now. They are spawning special management zones with the same protections, as far as removals, as the other deeper spawning SMZs.

DR. DUMAS: The reason why I ask is that there's a research item in North Carolina that's of interest of assessing -- Using baseline data to assess the use of artificial reefs, and so I don't know if this could be combined with that, at least in North Carolina, and I know that there isn't overlap completely, but there might be -- If some of the data collection is occurring dockside or through contacting for-hire fishermen, then we might be able to collect information on the SMZ areas while we're doing artificial reefs or something like that, and we might just get some synergy there. That's all. Thanks.

DR. COLLIER: I will say that the Artificial Reef Area 51 and Area 53, those are the names of the two spawning SMZs that were created, and there are two masters theses that were created at the College of Charleston, and, if you would like to see those, I can send those along to the group.

Now we'll go to the deepwater MPAs. These were created in Amendment 14, and the system management plan was created a little bit afterwards. This was created during the development of Amendment 36, and we noticed, if we were going to be creating a system management plan for the spawning SMZs, we might as well do it for the deepwater marine protected areas as well, and so we created this, and I guess this was created in 2016, and the deepwater MPAs went in place in 2008, and so this is going to help us evaluate how well the deepwater MPAs are doing over time, and these goals are a little bit different. These areas are much larger than the spawning special management zones, and these are also targeting deepwater species, including speckled hind, snowy grouper, warsaw grouper, yellowedge, misty, golden tilefish, and blueline tilefish.

They're a little bit different, in that they are not focused on spawning areas, but they are focused on areas where it's hoping that it's going to improve the sex ratio, the size structure, and the age structure in those areas. Going down to Goal 3, once again, this one is minimize adverse social and economic impacts of the deepwater MPAs, and you can see the objectives under the goal, which is to minimize economic impact, enhance respect for understanding of local knowledge, and then prevent compromise of boater safety due to placement of the MPAs, and that one is there to make sure that we're considering boater safety, because these areas are large, and we want them to be able to transverse them when they're coming back from further offshore.

We just have some socioeconomic metrics for this one. This one does not have the action items, like the previous one did, but you can look at the six different action items that we had, and one was to collect baseline social and economic data, and the second one is for fishermen targeting species outside are not impacted by the MPA, the stakeholders' knowledge is collected, we're collecting information on their perception, as well as a citizen science program and using that citizen science program to monitor deepwater MPAs. That's probably going to be a lot of the same comments.

DR. WHITEHEAD: This is also the first time I have seen the term "existence values" in one of these documents, and is that a new goal from the council? I know it's of interest to some stakeholders.

DR. COLLIER: It was definitely when we were going through other evaluation tools for offshore protected areas or marine protected areas, and existence values were definitely an important thing to include, and so we're trying to get more of that incorporated into some of the management and the evaluation of these deepwater MPAs.

DR. CROSSON: Good eye, John. I hadn't caught that. That's interesting, and that's always a difficult one to define though, the universe of who looking you're to ask, whether people in Kansas care about them or not.

DR. WATERS: Among this table here, it looks like you're asking us to either signify a yes or a no that we think that these ought to be pursued, right?

DR. COLLIER: It's not necessarily a yes or no for you guys to do that. What I was thinking about is, as we're going through our evaluation for these, have these things been started, yes or no, and that was going to be the first cut when we're trying to do the evaluation. Then, afterwards, we can come back in and probably develop more specified action items after programs have been initiated.

DR. WATERS: Okay. With that in mind, down on the items about stakeholder knowledge of deepwater MPAs and data on perception of the deepwater MPAs, I seem to remember that Larry Perruso at the Science Center did a preliminary study of deepwater MPAs, and this was maybe ten or fifteen years ago, and I couldn't find a copy of his report, but it was, I thought, a pretty good study at the time. It was not definitive, because it was just a pilot program, and he only talked to some individuals on the APs, and so you would need a much larger sample size to really put it in motion, but I would definitely start with his study, to see what he did and see if it's relevant to today's need for information, because I thought it was a good study.

DR. COLLIER: That sounds good. I will hit him up and get that study from him.

DR. CROSSON: What is this item of the metric for fishermen targeting species outside the snapper grouper complex are not impacted by the MPA, and what does that mean? What are you looking for there? Is it just whether that's the case?

DR. COLLIER: That one is not really well worded. I am thinking that we were trying to make sure that it's not causing competition outside of the MPAs in select areas, and so, because we displaced fishermen from the MPAs, there could be increased competition outside of the MPAs.

DR. CROSSON: Are you curious whether fishermen that are displaced outside of the MPA are targeting other snappers and groupers in other regions or just moving to a different fishery, or both, I guess?

DR. COLLIER: It's more trying to make sure that we're not increasing competition amongst snapper grouper fishermen, and maybe other fishermen as well, because these guys are -- They were going to get displaced by the placement of these.

DR. CROSSON: Yes, I think that's absolutely an interesting and important question to find out for any kind of regulations with the MPAs.

DR. YANDLE: It would be a hard one to answer, because it depends so much on the characteristics of the fishery and how territorial people are, and I'm sure that all of us could come up with a long list of variables that that would depend on, and so I think that's one of those questions that may be a lot harder to answer than it initially appears.

DR. CROSSON: Well, but we have some -- I guess it's a question of the limitations of our spatial data, because we have the fishing records for people, and so, if they are -- There is a limited universe. I mean, we have the snapper grouper SG 1 permit list, and so, if somebody was fishing in an area -- I guess this is going to relate to the grid size and the size of the MPAs and whether you can get down to that level of resolution, because it would be a very interesting question to answer, if you were able to do it just using the logbook data, but I just don't know whether you can -- I guess that would be the first question, is to see that you could address it using the logbook data or whether you actually had to go in there and do it with something more specific than that.

DR. COLLIER: Then, to pile on to that, even though we potentially reduced the area, we also reduced the number of fishermen, at least on the commercial side. Is there any information, any additional information, that we should be collecting for the deepwater MPAs, given that they are much larger and probably have a much larger economic impact?

DR. WATERS: You have discussed the information you want to collect. If you don't have a model or a framework to analyze, that's the problem, and so the first step might be to do a quick literature review to find out what other studies have been done and then try to build a model based on what worked and what did not work in those other studies. Then that model will tell you what kind of data you need to collect.

DR. CROSSON: Yes, and there's a lot of articles in recent years on this issue, coming from all around the world, and I have not written any, but I have reviewed them before, and so there's a lot of different methods that people use and a lot of different ways they go about testing it, and so it just definitely needs a bit literature review before you go too far, but, again, I think it's one of the most important questions on that list. I would put it at probably the highest priority, after it's been reworded.

DR. COLLIER: That's all I had for you guys. If there's additional questions, you guys can send me an email, or we can talk at a break. Thank you.

DR. CROSSON: Thanks, Chip. Christina, are you ready to move along and jump into the ABC control rule? Okay.

SOCIAL AND ECONOMIC ATTRIBUTES IN RISK TOLERANCE FOR THE ABC CONTROL RULE AMENDMENT

MS. WIEGAND: All right, and so there were two attachments for this, and the first one was a story map, and this was put together for the SSC, but I'm going to breeze through it quickly, just to give you guys some context, before we dive into social risk tolerance, so that you can understand why we're sort of looking at trying to identify social risk tolerance. This is John Carmichael's amendment, and so, if I say anything completely out of whack, he can keep me honest.

The council is working right now on a comprehensive ABC control rule, and they are making modifications to the current control rule in order to address things like scientific uncertainty and carryover and then to address the approach we use to determine the risk for overfishing, and there are a number of different actions in this amendment, but the one we're going to be focusing on is Action 2, looking at acceptable risk, and specifically Alternative 3, which would allow the council to sort of deviate from the default risk levels based on expert judgment, recommendations from the SSC, or sort of general knowledge.

To do this, we're considering developing a new approach that considers a wide number of factors, including biomass levels, the length of time between assessments, management performance, assessment and recruitment trends, social and economic concerns, and the fisheries performance reports that we've been putting together.

There are biological and environmental attributes, and I'm going to skip over those, and we'll focus on the human dimension attributes. Some are a bit more straightforward than others. The first is the ability to regulate the fishery, and we're looking at this based on how often the annual catch limit is exceeded, and so we're breaking things up into high risk, moderate risk, and low risk, the idea being that, if we are regularly exceeding the ACL, the stock is at a high risk of overfishing, and so, right now, the high is set at the ACL being exceeded three out of five years and/or exceeding the total ACL by 15 percent. Moderate is going to be one to two years out of five years, or does not exceed the ACL by more than 15 percent, and then low would be the fishery is consistently below the total ACL.

The next one is the potential for discard losses. Again, the idea here is, if a species is prone to discard losses, then being too risky with catch limits is easily going to lead to overfishing, and so high risk would be dead discards accounting for over 40 percent of total catch. For moderate, it's going to be 20 to 40 percent, and then low would be less than 20 percent.

We have got annual commercial value, and so this is looking at the value of a species either to the total annual revenue of all species in the FMP or the relative importance of a species on an individual trip throughout the region, and, again, here we've got high, moderate, and low categories.

Attribute 4 is recreational desirability, and so these are going to be identified by the trips that report targeting a species specifically, and so, for high, we're saying if more than 5 percent of trips specifically report targeting these species, for moderate is between 1 and 5 percent, and then for low is less than 1 percent of trips report going out specifically to fish for this species.

Then we've got the social concerns, which is a bit more of a challenge, and so I'll jump over to that document, and so we've been trying to put together sort of a mixed methods way of looking at this, because it can be hard to quantify community dependence on a fishery, and we wanted to make sure that we were considering both sort of smaller communities, that, while they may not have a high amount of landings proportionate to other communities in the South Atlantic, they are nonetheless reliant upon a particular species.

We also want to make sure that we're capturing some of these smaller fisheries, and I'm thinking like wreckfish and golden crab, where an individual community might not be particularly reliant on it, but individual fishermen certainly are, and then also find a way to consider cultural and historical importance of these fisheries, and so there's a lot that goes into the idea of the importance of fishing to a community, and so this is the sort of mixed method we've been working with.

Our first step is to identify the top ten commercial communities and the top ten recreational communities, and, for commercial, we're doing this based on regional quotient, and so it's the total value of species X for an individual community over the total value of that species throughout the entire South Atlantic. For recreational communities, we're doing this based on directed trips, and so trips that reported targeting a species or landed a species, and so the total number of directed trips for a community over the total number of directed trips for the whole region. Then, once we've got those top ten communities identified, we're pulling the local quotient for commercial.

For this, I did it based on individual dealer, and it can also be done based on individual vessel, but it's an individual dealer's total value of that species for a year over the value of everything they

sold that year, averaged across communities to get one number per community. For recreational communities, we're doing this based on the number of trips targeting that species over the number of trips targeting all South Atlantic grouper, or South-Atlantic-managed species.

Then we're setting a threshold for each of those, and so, if the local quotient is above X, that community is considered reliant if the percentage of trips for that species in that community is above X, and they are considered reliant, and I will get a bit more into that in a second. Then we are comparing those numbers with the qualitative information that we have available. We are looking at fishery performance reports and getting input from the fishermen as well as some of the social vulnerability indicators that are available.

Then, right now, we're still sort of messing with the categories, but we're saying, if six communities or less are considered highly-reliant on a species, then it's low risk. If you've got more than six, but less than fourteen, it's medium risk. If you've got fourteen or more, then it's a high-risk fishery, and, to be clear, we're thinking about this in the long term, and so the idea of if there is a lot of communities that are really reliant on a fishery then it's high risk, because, if you start overfishing that stock, it's going to have a pretty big impact on the communities in the South Atlantic.

Here are the top ten commercial fishing communities for black sea bass, red grouper, gag grouper, scamp, red porgy, greater amberjack, and gray triggerfish, and we pulled these just to sort of get a sense of how this methodology is working and where we might want to consider setting these thresholds for reliance. In red, we've got communities that had a local quotient greater than 25 percent, purple is greater than 15 percent, and then greater than or equal to 5 percent is in blue.

DR. CROSSON: Can I just ask a clarifying question? The local quotient is the average that the dealers -- The average amount that the average dealer -- I am not understanding that correctly. So it's the average dealer in a community is above that, even if it's -- It's not weighted, right, and it's just the average dealer, whether they are --

MS. WIEGAND: Right, and so I pulled all dealers that had landings of black sea bass in Beaufort, North Carolina, and then, for 2014, 2015, and 2016, I looked at the amount of black sea bass they sold versus the amount of everything they sold, and they I averaged that for the dealers in Beaufort, and so I got a value for 2014, 2015, and 2016 and then averaged across those three years. This is sort of what we get when we pull it for all of those species, and we also have the same for recreational fishing communities, this time with directed trips being greater than 65 percent, 55 percent, or greater than or equal to 45 percent.

Then we get into the fishery performance reports. We do not have fishery performance reports available for all species. They can be time consuming to put together, and I won't dwell on that now, since we're going to talk about fishery performance reports later in the meeting, but this was just an example of some of the information we're able to gather from fishery performance reports, and we do ask them specifically what communities are reliant upon these species.

Then we've got the social vulnerability indicators. These are meant to indicate communities that may have a challenge adapting to changes in the regulatory environment, and so poverty is a fairly clear indicator. Population composition looks at communities with vulnerable populations and households with children under five or the percentage of single-female-headed households, things

like that, and then personal disruption looks at those variables that might indicate that a community is not really set up to adapt well to changes, things like crime rates, separation rates, et cetera. This is what we ultimately get. These are the final quantitative risk tolerance ratings, considering a high threshold to consider reliance, medium, and low, and so those correspond to the thresholds that we set up here.

For the most part, when we have fishery performance reports available, these were aligning well, with the exception of greater amberjack. The quantitative information put greater amberjack as a low-risk fishery, but, when we did the fishery performance report, the Snapper Grouper AP talked a lot about how participation in the greater amberjack fishery is increasing, particularly because price is getting better and, as they're unable to target other reef fish species, they are slowly turning their focus towards greater amberjack, and so the qualitative information would indicate that perhaps greater amberjack is more of a medium risk species, as opposed to low risk that is indicated by the quantitative information.

That is what I have put together. It seems like sort of a very in-depth way to go. Putting together the fishery performance reports certainly takes time, but, as far as pulling the quantitative stuff, once we have an R code written for it, it's actually fairly quick to get through, and so that's what I have, and I'm happy to answer any questions, and I will scroll down to -- Here are some of the discussion questions that we had for you guys.

Are there any sort of human dimension factors that we're missing? Are we calibrating it accurately to get at low, moderate, or high risk? When we're determining whether a community is reliant, where should we set those thresholds? We've just been sort of looking at the data and setting it so that we don't end up with all fisheries as low risk or all fisheries as high risk, and then how should we balance the qualitative versus quantitative information, when considering social risk?

DR. YANDLE: A couple of things. One is probably more conceptual, and may or may not be helpful, but I'm a bit worried that the way this is being approached, and this may be driven by the regulation, in which case there's not much that can be done about it, but it seems like the concept of impact and risk are getting mixed together here, and I think there is a community that could be high on one and low on the other, and I'm worried that there is some subtlety that could play through into regulatory impact by putting them into one category. There could be a community that is very high risk that, because it's say in a major metropolitan area, or, for some other reasons, it would be relatively low impact. That was one thought, and it felt, as you were going through a lot of your variables, like we're mixing those -- Like those two things are getting mixed together.

This is probably going more towards the high, medium, and low. When I was looking at -- I can't remember if it was Table 1 or Table 2, but basically you've got fisheries that look like, because they are not coming up high in the directed trips, they look like they are lower risk and lower impact, but you're seeing them sort of in your non-highlighted colors across almost every single fishery.

Like Jacksonville was one that popped out to me that way, and I think there's probably some others there, and there may be a danger here of, if you're just looking at this on a species-by-species basis, then Jacksonville can take a hit on gag grouper, and then it takes a hit on black sea bass, and then and then and then, but all of those things together actually somehow is affecting either your risk or your impact, and this is, again, where I got into the whole thing with the way risk and impact is

conceptualized, and it's getting really mixed up there, and I think it's -- I have some concerns about it. Now that I have completely muddied the water, I will let everyone else talk about it.

MS. WIEGAND: You might recommend trying to group these species, perhaps, and look at it based on an aggregate, as opposed to individual species?

DR. YANDLE: I guess I'm more making a plea to be aware of cumulative impact and not just look at it species-by-species solely, but I just think, more broadly, I actually really am concerned about this whole concept of impact versus risk and what are you actually wanting to measure, as opposed to what are you measuring because it's the data you can get.

DR. SWEENEY-TOOKES: I think this is where Tracy started too, and I wanted to add to this. I know we started, at the very top, with the top ten commercial communities, and, the way you're nodding at me, I know that you know that I'm going to say that, while these might be indeed the communities that have the largest amount of money coming into them from fishing, it's not taking into account the communities that don't nearly meet the same dollar value, but whose reliance on fishing is much more dire, and so this, in many ways, is just glossing over all of the different socioeconomic issues in the whole region.

MS. WIEGAND: That's one of the reasons that we were trying to add in the sort of qualitative information, to perhaps get at some of these smaller communities, but, if there's any recommendations of how to sort of include those in there, I would love that, because I know that it's a big challenge when trying to use the available data that we have.

DR. WATERS: I was a little confused about the concept of risk also, probably for a different reason than already stated, and I was having trouble reconciling the concept of risk in this document to the main question about risk tolerance in the ABC control rule, and the reason I was confused is because I normally think of the ABC control rule as trying to adjust the long-term biological risk, and so a relatively high ABC increases long-term biological risk, but probably reduces short-term economic risk, whereas a more precautionary approach to setting ABC would reduce the long-term biological risk, but increase the short-term economic risk, and I'm having trouble seeing this tradeoff in the document that you just talked about.

MS. WIEGAND: I can explain that sort of my logic was to have the social component focus on long-term risk specifically and not consider short-term risk, and so the idea that, if we have a lot of communities based on this methodology that are showing up as reliant upon a fishery, in the long term, you want to be a little risk averse. I am not sure if I'm helping clarify things for you.

MR. CARMICHAEL: I've got to say that we kind of had that discussion when we were talking about this, and the way you described it is the way that certainly I kind of came at it, biologically, but I think what we've been trying to sort of do is, and Christina has been trying to say, is, if you are really dependent upon a fish, then the consequences of that fish becoming overfished and overfishing on that is actually more risky, because you have much more to lose than say the sort of normal short term, and allowing a community to catch more fish in the short term is generally going to work out to their advantage, because of all the economic value associated with the landings, but, in the long term, you might actually be putting yourself at higher risk.

It's definitely a different way of thinking, and it's one of the reasons that we've kind of been putting this much effort into it and went through that story map and trying to explain what is meant by this concept of risk, and I am prepared for it to be an interesting discussion when we get to the council with that as well, and so hearing your thoughts on that is certainly appreciated, and I think it illustrates what we're going to have to deal with, in terms of changing kind of this thought on risk.

DR. YANDLE: Which sort of again leads me back to I think you -- I am wondering if you're looking at biological risk, and then I'm not sure -- Particularly with it almost pointing in the opposite direction, in terms of where it would lead you to, and it almost feels like the concept isn't quite fitting well for some of the social stuff, which we desperately need in the analysis, and that was why I was sort of saying this whole thing about is this risk, is this impact, what is it, and, again, that gets problematic then, because of what we're supposed to be looking at with ABC rules.

MR. CARMICHAEL: I am with you on this. I mean, it's tough.

DR. YANDLE: This is tough in how to deal with it.

MR. CARMICHAEL: Any time we talk about risk, it always gets kind of tough, about what do you mean by risk and what are you preventing through avoiding risk. You know, when I think of the risk versus impact, and I hadn't really -- This is kind of new to me. When I think about impact across communities, as we were saying, it sort of fits into, well, that's sort of the socioeconomic consequences. The risk to the species, which is the ABC control rule realm, is sort of probably going down the columns. The communities that show up across all of the columns are susceptible to impact, but, to me, that's a little bit separate than what we're dealing with in the ABC control rule with risk.

We are hoping to get the council to consider that their overall -- They are setting the risk tolerance policy, and risk of overfishing is kind of the mandate from the Magnuson Act and what you're doing, but that you've got to think about -- I think where this comes in is kind of, well, why are you so worried about overfishing occurring. On one hand, there is the biological risk to the population, and it can't sustain itself, and it is no longer producing maximum sustainable yield, but then this is bringing in kind of another way to think about it, and it's like, well, then there is actually risk to your other management expectations of providing.

DR. YANDLE: So what are we given to work with here? What does Magnuson and what does the regs tell us that we can and should be thinking about?

MR. CARMICHAEL: Don't hold me to this quote, but I think, generally, it says that the council needs to develop a risk tolerance policy, and it probably includes a whole bunch of adverbs and adjectives and nouns of things that it could consider, such as socioeconomic and biological and all of that, yes.

DR. YANDLE: Okay, and so a very broad definition that we're working with and not a ton of guidance on it, and so there is --

MR. CARMICHAEL: I can't recall a ton of guidance, particularly not getting into this detail. What guidance there is probably is heavy towards the biological, but then there is always -- As

you know, there is always thrown in that we've also got to consider the socioeconomic consequences. Well, how do we do that? Well, we don't know.

DR. YANDLE: But then this is also driving the need to use the word "risk" in a way that's different than we may be used to using it, because that's what we are supposed to be thinking about when setting ABCs, and is that correct?

MR. CARMICHAEL: Yes, I think that's correct. We've tried to get in this, because I know, at the SSC, we've had discussions about bringing in more of the socioeconomic concerns when you're setting the ABCs, and so, ultimately, the end game of this is you will get that risk tolerance rating. That, combined with stock biomass, will essentially determine the P*. That is what is coming out in the end.

DR. YANDLE: Okay, and so then, to square the oval or the circle or whatever the hell it was that I made, what we're -- Maybe what we're trying to measure with all of this then is the risk of social impact. Is that fair?

MR. CARMICHAEL: Yes, that fits in, and I see Christina over there, and I think that is the way to put it.

MS. WIEGAND: Yes, that's definitely what I've been trying to capture with this little bit of a mess.

MR. CARMICHAEL: That's why this group is so much fun. It's the risk of social impact is probably -- That's probably going to make a bit more sense to the council, too. I think they might be able to get their heads around that. I can certainly get my head around that a little bit better, that that's one of the things that we're considering.

DR. YANDLE: In which case, then looking at Table 2 and Table 3, if you're, again, trying to make something that is R code friendly, you could then do something where you take these and weight them, based on, essentially, your different color coding here, and come up with a sort of a risk of impact number for them, just as a first cut that then you flesh out and get more into the subtleties of with the fishery performance reports.

DR. WHITEHEAD: In terms of the analysis, and, for those of you all know this stuff better than I do, stop me before I make a fool of myself, but the -- So there is this decision rule. If less than seven communities are considered highly reliant on a species, the fishery is considered to be low risk, and then there is other definitions for medium and high, and, to me, that looks like an ad hoc assignment, and is that the case?

MS. WIEGAND: Yes, and I just sort of set a range. I have struggled with it. Again, the concern was we sort of didn't want to end up where all fisheries were low risk, all fisheries were high risk, and so this was set considering that, but, if you guys have recommendations for a bit more structured way to set the high, low, and medium risk categories, that would be really helpful.

DR. WHITEHEAD: I don't have a problem with an ad hoc assignment when there is no information to guide what you're doing, but, when you do make an ad hoc assignment, and you categorize fisheries, and then that feeds into the Table 5, right, and is that correct, which is the

bottom line result, and I think it would be useful to -- You can just tweak that assignment, plus or minus one, for each of those, and just see how Table 5 changes, and, if it doesn't, then you have a defensible argument when someone criticizes you for using that ad hoc assignment. If it is sensitive, then you might need to think about it some more.

DR. DUMAS: I would like to weigh-in on the community reliance or community dependence on fisheries and other ways and other data that you might be able to use to look at that. One way to look at it, in terms of economic reliance on the fisheries, is sort of the fisheries output relative to all economic output within a given county or a given fishing community, if it's smaller than a county, and output is not necessarily readily attainable below the county level, but sales tax information is usually available at the county and then sub-county levels, at a municipality level, and they are usually collected at the state and state level reports, and so you could get the sales tax collected in each community.

Then, based on that, you can get total sales in each community, and then you have dockside sales of commercial fishing, and so you can compare dockside sales to total sales in the community, and, if dockside sales is a large portion of total sales in a community, then you can say that community might be more reliant on commercial fishing.

Then you could also do something similar with recreational. You could look at directed trips, the ratio of directed trips to sales, to all sales in a community and not just fishery -- When I say "sales", I don't mean just fishery sales, but I mean sales of everything in a community, and, if that number of directed trips is large compared to all sales, then that community would have a higher reliance on recreational fishing. For commercial fishing, if a community has large ex-vessel dockside fishing sales, compared to sales of everything in the community, that would be more reliant on fishing.

I don't know if you guys have looked at that before, but that might be a sub-county source of information that would be relatively -- That would be available at the sub-county level that would be available across states that might be an additional piece of information that could be useful to you. Thanks.

DR. CROSSON: Luckily, all the states in the South Atlantic have sales tax.

MS. WIEGAND: That was all that I had for this, unless anyone has any comments on how -- Once we have nailed down a quantitative way to identify these communities, a way to sort of balance the qualitative input we might have available versus the quantitative information and how to sort of weight those when considering these low, medium, and high categories.

DR. WATERS: At the risk of prolonging the discussion too long here, I am still confused. How does this fit into the ABC control rule?

MS. WIEGAND: Ultimately -- I am going to let John describe how this eventually gets into the P* value.

MR. CARMICHAEL: Well, what the control rule is going to do is classify all the stocks as a high, medium, and low risk rating. Then that's going to have a value associated with that, and then it will be combined with the stock biomass, and so you'll have a combination, like a matrix table. If

the risk rating is high, and the biomass is at this level, then that will equate to a specific P* value, and then the council will have the ability to deviate from that by a certain amount, based on the wording and the alternatives, and so all of this is feeding into that initial risk rating that the SSC is going to recommend to the council, but, ultimately, it's the council that needs to decide, but they'll do it with input from the SSC and the advisory panels.

DR. WATERS: For long-term biology, correct?

MR. CARMICHAEL: Not necessarily. The P* just gives them a value that they use in the projections, and the P* could be looked at cumulatively over the long term, as they might do for rebuilding, but it can also be looked at within any given year.

DR. WATERS: So you're interpreting this socioeconomic risk as being a long-term risk also, and so, in that sense, the long-term economic risk and the long-term biological risk move in the same direction, and is that correct?

MR. CARMICHAEL: Yes, I think so, yes.

DR. WATERS: But there should be a tension, I would think, a tradeoff, between the short term and the long term. If you choose your ABC level, keeping in mind this tradeoff between the short term and the long term, and so I'm still getting back to this long-term biological risk versus short-term economic risk, and I'm not sure how the long-term interpretation of the socioeconomic risk to these communities fits into that thinking. Anyway, end of discussion, but I haven't reconciled it in my mind as to how it really works out yet.

MS. WIEGAND: I guess, right now, we have exclusively, in terms of socioeconomic risk, have been focusing on long-term risk and not really considering the short-term economic impact of only considering long-term risk when identifying these tolerance levels, but it's something we could talk about more and consider how to sort of balance out those two disparate ideas.

MR. CARMICHAEL: One way the council could perhaps bring that in is, as I said, so the risk ratings that are shown up there, the council will have some ability to deviate from this, I like by like 0.1, for other considerations, and maybe the short-term economic impacts are one justification by which they may deviate from this standing risk rating P*, which maybe does more reflect the long-term. I would say, in general, we have probably not gone through it, thought exercise-wise, in that level of detail, and so this is actually kind of good to be able to frame it in that way, and so I think we're all kind of with you, Jim, in terms of getting our head around what all of this means and how it's going to equate to risk ratings and everything as we put it all into practice.

DR. YANDLE: I think there's always been perhaps an unstated understanding that part of what the SSC and the council are doing is a willingness to accept short-term economic pain to reduce long-term biological and with this now and social risk reduction, and so it's not really any change, but it's just almost more explicitly acknowledging that tension, and I'm sure there will be some people who will be very, very unhappy when it's like, well, you're high social risk, and so, guess what, we're going to cut your catch more. That is not going to be very happy-making in the short term, for sure, but I think it's also more explicitly acknowledged in the dilemma that we're facing.

MR. CARMICHAEL: Yes, and I would say that's kind of underlying the entire precautionary principle, that the risk, when you don't know things, says, well, you had better be precautionary about it, and so, yes, I think that's absolutely been underlying everything that we've done, and it's the whole reason that we reduce from MSY and consider all of these things, absolutely.

DR. CROSSON: Any other comments? Okay. Thank you, Christina. I think we're making good progress, and I think we'll take maybe a ten-minute break right now and come back at five after.

(Whereupon, a recess was taken.)

DR. CROSSON: We are going to re-start the committee, and we're going to move to Item Number 5, Recreational Accountability Measures Modifications. In discussion with council staff, if we manage to finish this one in a good amount of time, then we might jump up to Number 7, Fishery Performance Reports, and finish the day with that. Then, tomorrow morning, when we're bright and fresh, we can jump into the economics of the snapper grouper fishery presentation, and so, right now, we're going to move to Number 5, and this is John Hadley.

DR. WHITEHEAD: I've got the report on this, and there's a ton of questions.

DR. CROSSON: That's why I assigned it to you.

DR. WHITEHEAD: I know, but do we anticipate being able to get through this and have raw material for me to get started on answering the questions?

MR. HADLEY: Yes, and you mean this afternoon? Yes, I think we can make it through.

DR. WHITEHEAD: So it's not as scary as it looks from the surface? Okay.

RECREATIONAL ACCOUNTABILITY MEASURES MODIFICATIONS

MR. HADLEY: We will get into it, but there are several different questions, and we'll try to piece them out action-by-action and tackle them in that manner, kind of here's an action and then here's a set of questions, and then we'll move along kind of in a parcel, so to speak, based on the action, to hopefully make it a little bit easier.

Without further ado, the council is considering kind of a comprehensive amendment that would revise the recreational accountability measures, and they are really looking at the snapper grouper fishery and dolphin and wahoo, and, originally, the original kind of impetus to look into this was looking at possibly doing away with or changing in-season accountability measures.

Then, once we got into it, we started looking at all the different species and noticed that there are -- When you look at recreational accountability measures, they're kind of all over the board, and so one of the ways was kind of looking at consistency across regulations and making it easier for people to follow, and then, also, potentially avoiding some unintended negative social and economic effects, and the council is looking at these accountability measures and potentially different ways to standardize them, and so kind of coming at it from a different angle, and then also just looking at standardization, and so those two aspects.

I will mention that coastal migratory pelagics are not included in here. Really, the recreational sector usually doesn't meet the recreational ACL for either Spanish mackerel or king mackerel, and the accountability measures are managed differently, and they also include the Gulf, and so there's a little bit more complexity there, and so that's why the council decided to not include the coastal migratory pelagics and just go with dolphin wahoo and snapper grouper.

I will mention that we're fairly early in the process, and so, once we get into it, you'll see there is a lot of options there, and one of the reasons that we're bringing it to you now is this is likely the only shot that the SEP has at commenting on this amendment and really coming in early in the process, and I think this will help the council potentially narrow down some of the actions and alternatives that remain in the amendment.

For right now, in total, there is five actions in the amendment, three addressing snapper grouper species and two addressing dolphin and wahoo, and so, really, the council is looking at revising in-season closures in relation to the recreational accountability measures, revising post-season accountability measures, and then potentially looking at announcing start dates and end dates for recreational seasons, where appropriate or where applicable.

As I mentioned, we're fairly early in the process, and so the amendment has gone through scoping, but we're kind of midway through the process, and the -- Typically, when we come to the SEP, we'll be looking at an amendment that's gone through public hearings, sort of towards the end of the phase, and we're kind of mid-phase right now, and, as I mentioned, there is the potential, if this thing stays on track, that the council could be approving it for secretarial review at the end of the year, and so that's a little bit on the potential timeline.

With that, I will get into the purpose and need statement for the amendment itself, and the purpose is to revise the accountability measures for the recreational sector for species in the snapper grouper and dolphin wahoo fishery management plans to address the uncertainty in the estimates about recreational catch and increase standardization of accountability measures across species and also improve accountability and stability of fishing seasons.

The need is to maintain the optimum yield in recreational fisheries while limiting discard losses and promoting social and economic benefits to recreational anglers, and so, really, that latter part -- This is one of the major -- The social and economic aspects is really one of the major driving forces behind this amendment, and, with that, the questions that we came up with for the SEP, looking at like the purpose and need statement, are is it fully inclusive? Are there any other concepts that the council needs to consider when modifying recreational accountability measures? Are there potentially social or justice issues that should be considered, and are there other economic issues that should be considered? Are there some details, additional details, that should be in those purpose and need statements? I will take a pause to see if there is any discussion on that item.

I will say that one of the reasons that we're bringing this to the SEP at an early stage is we tend to get some kind of out-of-the-box thinking from this group, but, with that said, some of these are very open-ended questions, and so, as we move through, it's certainly acceptable that the SEP may not have a recommendation on this action or the purpose and need statement, and so just keeping

that in mind, that that is one of the potential answers, as we move through the different discussion questions.

DR. WHITEHEAD: A question. In the need for action, it says to maintain optimum yield in the recreational fisheries, and so how are we measuring optimum yield, and how do we know that we have it?

MR. HADLEY: That's a good question, and it really varies by fishery. This is a discussion that most recently the council has been having in the dolphin fishery. Right now, OY is tied to the ACL, and so fully harvesting the ACL, and the council is potentially looking at different ways to incorporate some of the -- Basically, other metrics besides harvest into how OY is considered, but, really, that question varies by species, but, a lot of times, OY is tied to the ACL or some percentage of the ACL.

DR. WHITEHEAD: Could you all give me a brief review on how the ACL, the annual catch limit -- I remember the acronym, but how that's tied back into the biology?

MR. HADLEY: Right, and so you tend to have the ABC, and so the acceptable biological catch, which the SSC recommends, and, then, there again, it's a broad-ranging statement, but the ACL tends to be set based on the ABC, and so, a lot of times, there is a step-down, and so the council may say the annual catch limit is 90 percent of the acceptable biological catch, sort of setting it and tying in some sort of uncertainty buffer there. That's kind of how those two relate to one to another.

Then OY sometimes potentially can be a further step-down from that, and it's really -- The concept of OY is kind of how you want -- Well, the long-term vision, so to speak, what is the optimal long-term outcome for the fishery, and, right now, a lot of times, that is defined as harvesting the annual catch limit.

DR. CROSSON: I was looking at this, and I was thinking optimum yield, and it has a biological definition, and I was thinking why is that going to be in here, when you're trying to provide -- I mean, recreational anglers are usually looking for something different than just necessarily optimum yield, but I think the way I'm reading that is that the council is already tasked with maintaining OY, and so this is just how can they do it in a way that increases recreational benefits and social benefits.

MR. HADLEY: Going back to our previous discussion on the ABC control rule, here is kind of a graphic, so to speak, and so here you have your overfishing limit, and you have your acceptable biological catch, and, a lot of times, there is a buffer put in between the ABC and the ACL, and so the acceptable biological catch and annual catch limit, and then the council does have an option to set an annual catch target.

As of now, I don't think there are any management measures linked to an annual catch target, but that's another kind of option that Magnuson offers, and that's one of the kind of avenues that the council has been looking at pursuing in the dolphin fishery, but, right now, there is no teeth, so to speak, to the annual catch target.

DR. CROSSON: This amendment is mostly dealing with snapper grouper species, and those are usually ones that have high retained values. It's usually something people do want to keep, versus something more catch-and-release, like king or something, where they're targeting a certain size.

DR. WHITEHEAD: So optimum is based on some biological measure with some ad hoc rules assigned to it, and it's still not the sort of optimum that a fisheries economist would think, right? Okay.

DR. CROSSON: Yes, and it's just basically what is the maximum biological extraction that you can do over the long-term, yes.

MR. HADLEY: I will say this is something we could also -- Once we go through the actions in the amendment, we could always circle back around and kind of come back to the purpose and need statement, if that's what the -- Are we good? Okay. Just throwing it out there.

DR. WATERS: From the questions of how some of these concepts are calculated, I think the statements themselves, in my opinion, are sufficiently broad that they seem reasonable to me. In other words, I'm happy with the purpose and need statement.

MR. HADLEY: Okay. Thank you. Any other comments before we move on to Action 1?

DR. SWEENEY-TOOKES: I have a big-picture question, and that's probably background that I'm just lacking, but the snapper grouper and the dolphin wahoo are treated very differently in this document, and I'm wondering if you can just contextualize that for us before we dive into these actions.

MR. HADLEY: That's a good question. That kind of goes back to how the council first envisioned this, when we started looking at all the different accountability measures for the recreational sector, and that was inclusive of dolphin wahoo, snapper grouper, and coastal migratory pelagics. As it sort of narrowed down, and you look at all these -- Many recreational fishermen I think have -- Well, I take that back, but they tend to go fishing for several different species, and there is these accountability measures that are all over the place, and they might go snapper grouper fishing and dolphin wahoo fishing, but there's not necessarily a natural separation there.

As we have narrowed it down, it ended up -- They started out with kind of all the finfish species that the South Atlantic Council manages, and then they decided to move the coastal migratory pelagics, as mentioned earlier, kind of the management issues that relate to those, because those get a little bit complicated, and dolphin wahoo is in there for now, but it certainly is a different fishery, very much so, than the snapper grouper fishery, but we're still kind of in the comprehensive view stage, so to speak, and the council could certainly go down the path of narrowing it down potentially to just snapper grouper species, or potentially dolphin wahoo species, and there is that option, but, as of now, they have kind of kept their options open for both different FMPs.

DR. DUMAS: I don't see anything related to any concept of equity or fairness among recreational anglers, and did you want to include anything, any wording, that these actions should take into consideration equity among recreational anglers? That would go towards the question of are there other social or justice issues that should be considered.

Also, under need for action, it says promoting social and economic benefits to recreational anglers, and do you want to consider socioeconomic benefits in general, or just to recreational anglers? I know these actions are looking at kind of the measures for the recreational sector, but like, for example, in addition to the anglers, would you want to take into consideration sort of charter boat operators or private boat sales or things like that, other aspects of the economic aspects of recreational fishing other than to the recreational anglers themselves?

MR. HADLEY: I think that's a good recommendation, and so you're saying kind of broaden it a little bit beyond just the anglers and more so towards the recreational sector in general?

DR. DUMAS: Right, and my question is do you want to do that, and I just wanted to bring up that question, because, the way it is now, it may be unintentionally limiting it to recreational anglers, rather than broadening it to the recreational sector. Then, among recreational anglers, do you want to add anything about equity? For example, some actions might maximize social and economic benefits, but the benefit might only go to a few recreational anglers, whereas another type of management action might spread that same amount of socioeconomic benefit among many anglers, and so that's related to the fairness or equity considerations among recreational anglers.

MR. HADLEY: Right, and I think that's a good recommendation, and a good point to bring up, and that's probably a question that we would pose to the council when we bring this up, if they want to add something along the lines of equity, but, yes, I think that could certainly be an SEP recommendation to consider that.

DR. WHITEHEAD: That's a good point, actually. If you just look at an example with no empirical evidence to back it up, but, if one sector, and say it's the for-hire sector is busting the quota, would the accountability measures adopted affect the for-hire sector and the private boat sector the same way? That's a potential equity measure that could be addressed.

MR. HADLEY: They could, and they are grouped as one, as the recreational sector, so to speak, and we don't have any sort of differentiation between the for-hire and recreational, and so that's a very good thing to keep in mind, and then, also, back to Chris's point, and kind of examining the for-hire sector, particularly in the need for action, as we'll get into it, many of the alternatives kind of have the for-hire sector in mind, particularly some of the seasons, and so, yes, very good point and something that we could certainly put in there.

DR. DUMAS: The Gulf is divided into charter boat versus headboat sectors, and so there are a lot of different sub-components of the recreational sector, and so, for some fisheries in some areas, different accountability measures might affect those different sub-sectors in different ways, and so the equity issues might become important in some areas for some species. Thanks.

DR. WHITEHEAD: You might be getting into this later, but how does the recreational data come in, again? Is it quicker for one sector than another, or does it all just come as a lump at the end and we don't really know who is busting the quota?

MR. HADLEY: Kind of keeping a focus just on the recreational sector, the for-hire component, and I say the non-headboat for-hire component and the private recreational angler, the effort

estimates and the catch estimates, they all come in as two-month waves through the Marine Recreational Information Program.

The headboat program has its own logbook reporting, and it's left out of MRIP, and so that has its own different timeline, and, with that, I'm not really -- I am not sure what the timing increments are for the logbook program, as far as how the data comes from the Science Center. Recently, they're down to weekly reporting, and so it's a fairly short reporting timeframe, and it can come in fairly quickly. It doesn't have the waiting period, so to speak, that MRIP does, but, as far as getting back to your original question, the charter boat and private sector both come in in kind of these two-month blocks, so to speak, and so there's a considerable time lag from -- You're not getting real-time data.

DR. DUMAS: I'm not sure this is applicable to the snapper grouper and dolphin wahoo fisheries, but, to other fisheries, where shore mode and pier mode might be important, if you want to come up with methods that sort of standardize the accountability measures across species, then that could also be important to -- It's also another aspect of equity that we would be taking into account, not only private mode versus charter versus headboat, but also taking into account shore and pier mode too, and so just all the different aspects of recreational fishing. Thanks.

DR. WHITEHEAD: One more thing. Thinking about sector quotas is just a can of worms, right, because we don't have sector quotas, and we treat every fish caught in the recreational sector just like equally, and so that got my support of Chris's argument for thinking about equity issues across the recreational sectors, but I like his other points.

MR. HADLEY: All right. I think we had some good discussion there. Any more on the purpose and need? All right. Then, moving along, we'll jump into the actions, and, as I mentioned, some of the actions and alternatives get pretty lengthy, and we'll take a break, so to speak, in between actions, rather than trying to go through the kind of long list of questions here, and we'll just take this action-by-action.

Looking at Action 1 in the amendment, it's to revise the in-season closure for the snapper grouper, and the first three actions look at the Snapper Grouper FMP. Action 1 would revise the in-season closure under recreational accountability in the Snapper Grouper FMP, and, if you look under the no-action alternative there, this kind of shows where kind of things are a little bit different across species, and there are a total of forty-four species in the complex, or in the Snapper Grouper FMP, rather, and there is an in-season closure that would close the harvest of species when the recreational landings of that species reaches or is projected to reach the recreational annual catch limit and the National Marine Fisheries Service determines no closures necessary based on the best scientific information available.

The following species do not have an in-season closure, and so looking at black sea bass, red snapper, speckled hind, and warsaw grouper, and so these are the kind of four exception species, and, really, we only have allowable harvest on black sea bass and, this year, red snapper, but, there again, there is some inconsistency here within the FMP.

One of the potential alternatives is to look at removing the in-season closure for the recreational sector, and this could be for all snapper grouper species or potentially all snapper grouper species except those that are listed as overfished, and so looking at trying to, there again, get out from

under this in-season closure on several species, and it creates uncertainty in the recreational sector, and so the potential -- There has to be an accountability measure, and there does not necessarily need to be an in-season closure as an accountability measure, and so that's where the council is going here, potentially.

Looking at some of the scoping comments that were received, they were in favor of the council removing the in-season closures because of inefficiencies, such as closures due to the inability to act quickly, based on recreational landings, and so kind of what we just discussed, and these kind of early or unexpected in-season closures cause harm for the for-hire sector, in terms of booking trips and for individual anglers who don't check regulations every time they go out fishing, and so they may be looking ahead of time, say at the beginning of the year, and is it open, and many fishermen don't want to go through and check the regulations every time they go out, because there might have been in-season closure issued in the meantime.

Another commenter stated that accountability measures should take into account the reliability of MRIP catch estimates, and so looking at potentially the percent standard error, the PSE, associated with that, and a commenter directly addressed the issue of consistency across species, to make it as easy as possible, and so, there again, kind of suggesting one accountability measure across all species, just to make the regulations a little bit easier to follow.

Looking at the question for the SEP in this case, the scoping comments pointed out the in-season closures cause disruptions on the for-hire sector. Anglers sometimes book trips with the idea of being able to go out and target specific species. If the in-season closure occurs, they may not be able to do so, and another issue is that in-season closures are confusing, and anglers would like some consistency across species or species groupings, and so are there other social or economic considerations that the council should consider, either by retaining or removing in-season closures?

I will take a break there, and, really, you have kind of a couple of examples up here of kind of the human component of what happens when these in-season closures go into place, and certainly some of the socioeconomic effects that can occur, and so are there other considerations that the council should think about in this respect?

DR. WHITEHEAD: The way this is working is so Action 1 would get rid of in-season closures, and, if the council does that, then we need accountability measures for post-season overages?

MR. HADLEY: That's correct, and so there has to be an accountability measure in there somewhere, and that's what we'll get into in Action 2, but kind of step one would be removing the in-season closure, but, at the same time, there needs to be an accountability measure there somewhere, and so the council would likely have to look at post-season.

DR. WHITEHEAD: In terms of the biology, you can maintain the optimum yield whether a fish is caught this year and not caught next year, versus whether the fish is not caught this year, and so it's the same biology?

MR. CARMICHAEL: Anytime you get into this, there is always a lot of debate about whether or not a fish caught this year is worth the same caught next year or the fish not caught this year and what he adds to the population. I think that you can sort of work it out theoretically as to what

their value might be, considering growth and natural mortality and all of that kind of stuff, but, for the most part, we probably don't have the data to really do it justice and say for sure.

DR. WHITEHEAD: Given the constraints of the Socioeconomic Panel, that we don't have any biologists on the panel, we should assume that all of the actions after Action 1 can maintain optimum yield when assessing those, in terms of socioeconomic considerations?

MR. CARMICHAEL: I mean, I think that's probably hard to say, if we get into what is optimum yield. I think you guys focusing on those socioeconomic aspects of it is probably safe, and let the other parts fall over to the SSC and others.

DR. WHITEHEAD: Thank you.

DR. SWEENEY-TOOKES: Can I turn that same question around and ask if there is any persuasive reason to continue doing in-season closures, rather than going with this action?

MR. HADLEY: Well, that's a good question. In some cases, it's sort of pay me now or pay me later, and so there are some circumstances where, if you got rid of your in-season closure, while, as your post-season accountability measure, you have to set a season the following year, that season might be very short, and a fishery could be penalized if you happened to get estimates that were exceptionally high one year, and you end up paying for those exceptionally high landings in the following year, and so there are -- I guess there are some situations where you just end up kind of changing when the pain, so to speak, or when the closure occurs, and so, if you got rid of this in-season closure, you may have to set a season the following year that is very, very short, and people will be fairly happy with that, and there will be social and economic consequences to that.

MS. WIEGAND: I was just going to say the situation with cobia is an excellent example, where they had to now, based on a year of high landings, had to set the season very short, starting on January 1 and closing on January 24, and that sort of snowballed a number of socioeconomic issues that resulted in us transferring management, and so there is some tradeoffs there.

MR. CARMICHAEL: That is a good question too, because it gets at the biological things of, if you have the closure, can you effectively protect the fish. If you have the closure, and effort isn't responding, and the fish are still being counted and there is high discard mortality, then, in a lot of cases, having the closure really doesn't achieve the goal that you had hoped.

Now, with cobia, that's kind of a different situation, because that's a fish that there is a lot of directed effort, and so they can not go out and try to catch them and are unlikely to encounter them, but then, also, they survive very well, and they're not deepwater fish. That's one of the reasons we're looking at this, is that you can have a lot of things that are closed, but you're not really saving fish, and that's just sort of a challenge that I think we have in dealing with our deepwater snapper groupers. Then Myra was mentioning that we also have OY and ACL that are often set at the same values, and say OY equals the ACL, and so you get into a whole what really is OY and what are you doing with it aspect, too.

DR. YANDLE: Is there any data on the effectiveness of in-season closures, in terms of changing behavior? Like how much are they actually followed? I know we can't change the behavior of the fish with them, but, with what was being said earlier, some people don't even realize that

they're not supposed to be targeting that species anymore, and do we have any data about their effectiveness versus other approaches?

MR. CARMICHAEL: There is not a whole lot. What is coming out soon is they've been doing some work in the Gulf of Mexico related to red snapper, where they've had the really short seasons, and then they were mandated to have a much longer season, and they have done studies on how that impacted catch rates, and some of the preliminary stuff is that catch rates tend to be pretty much the same, regardless of the season length, and so we do know that, at least anecdotally, from a lot of people's experience, when you have the potential for a very short season, because of a seasonal closure that's going to be applied, you create, and this was a word that I got from some of the Gulf headboat people, but panic fishing, where people feel like, when it opens, I've got to go, because I don't know when it's going to close.

It creates that what in commercial we call derbies, but I think that definitely happens when you're dealing with the really short seasons. How short does it have to be to cause that to happen, I don't know, but I have seen a lot of situations where you're dealing with that sort of thing, and people drop everything to go fishing, and that's what was happening with the Gulf, and they are seeing now that the effort that they were receiving on a daily basis, on like nine days or fifteen days, did not translate to the same amount of effort on a daily basis when they went to a much longer season last year, and so there are some references coming out on that pretty quick, I think, from talking to some of the Gulf folks, that would definitely be of interest to all of us, especially as we deal with our red snapper situation.

MS. BROUWER: One thing that I wanted to make sure that I mentioned while you guys consider what we're talking about here is one of the reasons the council started talking about getting rid of in-season closures was because they were, at the time, considering a recreational season for the deepwater species in one of the visioning amendments.

They have since thrown that out, but they are still having a lot of discussion, as a result of these recreational workshops that have been happening, and they are still focusing and trying to figure out whether seasons are going to work for the snapper grouper fishery, and one thing that we have noticed with the existing seasons, because we do have a couple of species, snowy grouper and blueline tilefish, that are three-month seasons, I believe, is there is not enough time between the time the data come in to actually apply an in-season closure, because, by the time the Service gets the information on the landings, the season is already ending, and so those in-season accountability measures for species that have a short open season aren't really working. They can't really work very well, because of the lag in the data, and so that's another reason, besides the ones that have been mentioned, for why the council thought, well, for some species, we might as well just focus on the post-season AMs.

MR. HADLEY: Jim, did you have a point earlier?

DR. WATERS: I think they've already been made.

MR. HADLEY: Okay.

DR. DUMAS: For in-season closures, is there a biological reason for these in-season closures, like the fish are spawning at a certain time, and so you don't want to have the fishery in operation at that time, or is the purpose of the in-season closures solely to limit catch in a particular year?

MR. HADLEY: The in-season closures are really looking at limiting harvest, limiting catch in this case, but, as you pointed out, there are spawning season closures or different other reasons to have a closure, and that's kind of getting down to how we define in-season closures, but, yes, that's what we're talking about here specifically, are the closures that are occurring to specifically limit harvest and keep it as close as possible to the annual catch limit.

DR. WHITEHEAD: Can I type up that the SEP is in favor of Alternative 2, removing in-season closures?

MR. HADLEY: All right. If there are no further comments on Action 1, we'll move along in the amendment. We're all good? Okay. Moving on to Action 2, this is a fairly lengthy action, and so I will kind of run through it and try to give the Cliff Notes, so to speak, of what is going on here, but this is the other side of accountability measures.

You have in-season accountability measures, and then you have post-season accountability measures, and this is really one that the council is certainly looking into revamping, and, there again, if you were to get rid of in-season closures, or in-season accountability measures, you still need to have an accountability measure of some sort, and so that would fall on the post-season.

Under Alternative 1, the no action alternative, the post-season accountability measures would be kept for the recreational sector for snapper grouper species, and there are several different kind of areas where these fall, and so there is thirty-six species where the post-season accountability measure occurs if the species is overfished and the total ACL is exceeded. The National Marine Fisheries Service will monitor landings for persistence in increased landings, and, if necessary, the Assistant Administrator will reduce the length of the recreational fishing season and the recreational annual catch limit by the amount of the overage.

Here, if you are exhibiting -- Essentially, if you are exhibiting high landings, likely for several years, those high landings are, quote, unquote, persistent, and so that's when that accountability measure will come in and the recreational fishing season will be reduced and the ACL will be reduced as well by the overage.

This is kind of your common post-season accountability measure, but, for the deepwater complex and blueline tilefish, if overfished and the total annual catch limit is exceeded, the AA will reduce the length of the recreational season in the following fishing year to ensure that recreational landings do not exceed the recreational ACL for the following fishing year, and so, there again, removing that language on persistence, and you are focusing specifically on the recreational fishing season. You are not incorporating the annual catch limit there.

Then, for vermilion snapper, if it's overfished and the ACL is exceeded, the AA will reduce the annual catch limit for the following year by the amount of the overage in the prior fishing year, and so kind of three different options there. One is potentially reducing the length of the season and the ACL, and two is reducing the fishing season only, and three is reducing the ACL only.

Moving on to Alternative 2, this would remove the existing post-season accountability measures for the recreational sector that reduces that length of the fishing season and the ACL in the following fishing year only if the species is overfished and the total ACL is exceeded. There, that last caveat is the important part, if it is overfished and the total ACL is exceeded.

Alternative 3 would replace the existing trigger for the post-season accountability measure and only specify post-season accountability measures if the species were to stay from year-to-year, and so, really, in the three-year geometric mean of landings, it exceeds the recreational ACL, and so, in 3a, you're looking at a three-year geometric mean, and how that relates to the ACL is, in that case, if in any year the annual catch limit is changed, the moving multiyear geometric mean would start over, and so that just specifies when that mean would be potentially reset.

DR. WHITEHEAD: Alternative 2, the recreational sector exceeds its catch limit in a year, and is the total catch limit exceeded in this, or are we just talking about the recreational sector?

MR. HADLEY: In this case, it's just the -- If it's overfished and the total ACL is exceeded.

DR. WHITEHEAD: So Alternative 2 applies to a situation where there is no biological problem with the recreational sector catching more than it's supposed to in any given year?

MR. HADLEY: Yes, but with the caveat that if -- You have that cap of the total ACL, and so you're not -- You are limiting harvest based on that total ACL, and so, in that case, the commercial sector would need to be underharvesting.

DR. WHITEHEAD: Right, and that was my understanding when I said there is no biological problem, and so you've got your total ACL, and your recreational and your commercial, and add those together and it's your total, and so we're under the total, and the recreational sector is catching more than they are supposed to, and that means the commercial sector is catching less than they are allowed. That is Alternative 2.

MR. HADLEY: Correct.

DR. WHITEHEAD: Thank you.

DR. WATERS: John, a clarification on Sub-Alternative 3d, and sort of following up on what John Whitehead just said, but shouldn't 3b also include the phrase "where the recreational portion of the ACL also is exceeded"?

MR. HADLEY: Yes, it should, and that's something that we can certainly add to the sub-alternative language, and so good catch on that. There again, I will say, if you see anything in the wording, as we go through them, please speak up, because we're fairly early in the process right now, where the wording of these actions can certainly be changed or clarified.

DR. WATERS: I have some when we get to Alternative 5, because I think there might be some typos there.

DR. WHITEHEAD: Is it the case that if Alternative 2 is met then Alternatives 3, 4, 5, and 6 are irrelevant, or am I missing something?

MR. HADLEY: In that case, there is always the potential that you could add them together, but they would be -- In the case of Alternative 2, the council would probably just choose Alternative 2, and so, yes, those others would be irrelevant. Like I said, there is the option to stack two together, and so say -- I am just making this up, but, if Alternative 3a and 4a would work well for the fishery, the council could choose two preferreds, but, there again, it varies by the alternative.

I will work, really quickly, through the different aspects of -- I realize that this one -- As I mentioned, we're very kind of early in the process, and many of these will kind of be narrowed down, and, any advice in that aspect, I'm sure would be well received, as far as if that's not going to work from a social or economic standpoint, but, just working through the Alternative 3, you have 3a, where you're looking at a geometric mean. In 3b, you're looking at the sum of the past three years, and so you're looking at a three-year sum and comparing the sum of the recreational landings over the past three years in comparison to the sum of the recreational annual catch limit, and so that would be the trigger for the accountability measure.

Alternative 3c would be the -- There is kind of two aspects to this, and the trigger would be, for species where the annual catch limits are constant and recreational landings exceed the recreational ACL in two of the previous three fishing years or the ABC is exceeded in any one fishing year, and so that's kind of your trigger there, and so you have -- You are monitoring recreational landings. If they exceed the ACL in any two of three years, then you would say, okay, we're going to trigger a post-season accountability measure, or if the total ABC is exceeded, then what would trigger the accountability measure.

3d is looking at the commercial and recreational sector combined, looking at the total ACL is exceeded, and 3e is based on whether or not the stock is overfished, and so, if the stock is overfished, based on the most recent report to Congress, or, for a species complex, at least one of the species in the complex is overfished, then that would sort of trigger the post-season accountability measure. You kind of have a suite of options there on what the trigger would be.

I will move on to Alternative 4, and, here again, this is looking at replacing the existing action trigger, so to speak, for post-season accountability measures, and there is several alternatives. If a post-season accountability measure is triggered, monitor for persistence in increased landings and reduce the recreational ACL in the following fishing year by the amount of the overage to the recreational annual catch limit, or Sub-Alternative 4b, which would reduce the length of the following fishing season by the amount necessary to ensure that recreational landings do not exceed the annual catch limit in the following fishing year. 4a is looking at reducing the ACL, and 4b is looking at potentially reducing the fishing season.

DR. WATERS: John, can the council choose both 4a and 4b for different species within the fishery? In other words, 4a for some species and 4b for other species?

MR. HADLEY: That is an option. They could do that. They would probably -- If they wanted to go down that road, it may require splitting up the action and say, for XYZ species, this is the accountability measure, and then, for everything else, this would be the other accountability measure, but, yes, that is an option, to get to your question.

DR. WATERS: Should I wait until later to pose additional questions about that, or do you want me to jump right in now?

MR. HADLEY: No, this is good, because the next one kind of shifts gears, looking at uncertainty of the catch estimates, and so it's kind of a --

DR. WATERS: My thinking on this 4a and 4b fits right in with the Alternative 5, and it seems to me that, if you have -- That you might want to choose 4a if you have estimates of your recreational landings that are really precise. When your PSE is low, then you know that your landings estimate is pretty good, but, if you have a species for which you have really imprecise estimates, then it's possible that your calculated overage might really just be a sampling error. In that case, you might want to go with 4b, where you just kind of recalibrate the season, but you don't change the actual ACL for that species.

MR. HADLEY: I think, if I'm hearing you correctly, sort of incorporating aspects of Alternative 5 into Alternative 4, and you would choose the -- Basically, you would choose the sub-alternative depending on the certainty of the catch estimates, and, potentially, we could get into the details, as far as the PSE cutoff, so to speak.

DR. WATERS: Right. That's exactly what I am suggesting, yes.

MR. HADLEY: All right. If there is no more comments on Alternative 4, I will jump into Alternative 5 and 6, which are fairly similar to one another. These two alternatives look at, if a post-season accountability measure is triggered, the recreational ACL will be reduced by the amount of the overage in the following fishing season, and that could potentially depend on the PSE associated with those recreational estimates, and so 5a applies to all snapper grouper species, regardless of the PSE.

5b through 5d, they set PSE thresholds, so to speak, and so, in 5b, this would apply only to snapper grouper species where the most recent certified annual PSE is greater than 40 percent, and 5c steps that up to 60 percent, and 5d steps that up to 80 percent, and so, in this case, the lower the percent, the more confidence you can have in the estimates. Then Alternative 6 is very similar. However, the post-season accountability measure would be to reduce the length of the recreational fishing season, and, there again, with the same sub-alternatives looking at different PSEs.

DR. WATERS: On only Sub-Alternatives 5 and 6, I think that the language of "annual PSE is greater than" should be changed to "annual PSE is less than". In other words, I think there is a typo there. The way it's stated, it's a little bit counterintuitive, and I think the idea behind using PSE to help trigger an AM is that the recreational sector should not be penalized if estimates of recreational landings are highly uncertain. In that case, the estimated overage might just be a sampling error, and so one would expect an AM to be triggered for species with the most reliable estimates, i.e., when PSE is low, and you would not trigger an AM with species with extremely unreliable estimates, when PSE is high. As written, I think Alternative 5 and 6 do just the opposite.

MR. HADLEY: Jim, I think you're certainly right here, and I think that's a good point, because, basically, the concept between 5b is you would apply post-season accountability measures only for species where you have fairly high certainty in the catch estimates. Then, as you move down the sub-alternatives, to 5d, you essentially have less certainty. However, you would still trigger

the accountability measure, and so I think you're right that it should be less than whatever the percentages are, and so you're looking at -- So, if it was 38, and say you had a black sea bass estimate, and it was 38 percent under 5b, then it would be triggered, and that's less than 40.

I know that was quite the brainteaser. Before we get in -- I have a few examples to show you, particularly on the PSEs, and there are several examples in the discussion that we could get into if you would like. Before we move along, are there any other questions on the different sub-alternatives, and we can certainly come back to these as well, as we get into the different discussion questions.

DR. WHITEHEAD: Are the discussion questions for Action 2 next?

MR. HADLEY: Yes, they're coming up, and, really quickly, I wanted to just go over some examples of species that would fall into those different sub-alternatives in Alternative 5 and 6, and so looking at your PSEs, and these are some of the species that do have PSEs of less than 40 percent, and, really, some of the ones that we have kind of better certainty on are black sea bass, vermilion snapper, and gray triggerfish. However, you can see there are so many species in that complex that many of those would be excluded if you set this PSE trigger.

Moving up 40 to 60, these are the kind of other species that you would add to that list, if you went with 5a, or you went with 5b or 6b, and then, if you bumped it up to 80 percent, here are the additional species that you would pick up, where the PSEs would allow the accountability measure to be triggered.

DR. WHITEHEAD: Is there a pattern to the PSEs? Is it based on number of trips?

MR. HADLEY: A lot of it has to do with the number of intercepts, and that can very much fluctuate, and so you tend to have a good number of intercepts on black sea bass or vermilion snapper, whereas, when you get into some of the particularly deepwater species -- I mean, here, all of them can be caught in the deep water, and red snapper not so much, and you catch those all over, but they could be deepwater or shallow-water, but blueline tilefish are deepwater, and silk snapper tend to be deepwater, and, with red snapper, one of the issues is you tend to have a short season, or relatively few intercepts, and so you end up with pretty high PSEs there, and so, really, a lot of it can have to do with sample size.

Very quickly, looking at some of the scoping comments that were received, one commenter was in favor of phasing-in modifications to AMs over a couple of years, to temper their impact, and, also, due to the nature of recreational landings, multiyear landings need to be taken into account before adjusting AMs, and so that was another suggestion, and particularly for those species whose life cycles seem to be cyclical across years.

Getting to the questions of the SEP, the council will need to choose at least one accountability measure from Action 1 or 2, to meet the MSA requirements. As I mentioned, there has to be an accountability measure, and it can be pre-season or post-season, but there has to be an accountability measure of some kind, and so, from a socioeconomic perspective, which type of AM, possible season closure versus modifications to allowable fishing behavior in the following season, would better suit the purpose and need? There again, it's try to mitigate some of those

social and economic impacts. I don't know if we want to take these one-by-one or just kind of as a group, before I jump to the next question.

DR. CROSSON: Did we already answer that first one? Is that the first thing that we did when we decided that we preferred -- Okay. So we have one answer.

MR. HADLEY: Yes, I think we covered that, and so, moving along, one of the stated purposes of the amendment is to provide stability across seasons, and so looking at Alternative 5 and 6. Whether a species is affected or not could fluctuate from year to year, due to changes in the PSE, and so, if you had a low PSE, then the species could trigger a post-season accountability measure. If that PSE changes the following year, it might not qualify, and so, while this doesn't happen very often, there are certainly species where it does, and the potential is there.

The other side of that argument is that catch levels are more reliable for species that have lower PSEs and that modifications to the ACL should be restricted only to those that are -- Species that the MRIP catch estimates are less reliable, and so, on that note, does the SEP have a recommendation when it comes to taking into account catch estimate reliability when determining whether an AM should be implemented?

DR. WATERS: I don't have a recommendation as to what level of PSE ought to be the cutoff.

MR. HADLEY: But you do think the council should consider PSEs when determining how accountability measures are implemented or whether or not they are implemented?

DR. WATERS: Yes, I think so, because the PSE gives you information about the reliability of your estimate. A really high PSE might just reflect sampling error.

DR. CROSSON: I don't have a good feel for it either, Jim. I just know that I definitely look at the ones that were in that 60 to 80 percent range, and I've looked at some of the raw data before for blueline tilefish and seen how one small intercept can really kind of create a large problem in the dataset and something that is misleading, but I don't have a good number, off the top of my head.

DR. WHITEHEAD: It's possible, the way that the fish are counted, that there is a species with few intercepts, but a big weight in the MRIP, and the estimate is that's a lot of fish, but there's a lot of uncertainty about it.

MR. HADLEY: Yes, and we've seen that with several of our species, where you have very few intercepts, or a specific intercept gets expanded, and that ends up leading people to question some of the data, as far as that one intercept, and I can think of amberjack, and red snapper in some circumstances, where that has occurred, but, yes, absolutely, one or a handful of intercepts can be expanded to kind of give you a one-time bump, so to speak, in landings.

DR. WHITEHEAD: So risk aversion matters here on the part of the decisionmaker, and we're not worried that there is some sort of fat-tail problem or something, and we can just look at the PSE and say there is a lot of uncertainty and we want to ignore it, at some point?

DR. CROSSON: I have seen this happen when you deal with a SEDAR. You're looking at a landings history, and suddenly it's why did it jump up, and it's one year, and people go in and dive in and they decide that, okay, we're not going to include that year, or we're going to use the average of the two years on either side of it or something like that, and so I don't know that there's a formal way to deal with that in SEDAR though. It's always kind of as the issue comes up that they choose.

DR. DUMAS: Thinking back to Jim's point about whether we should be worried about events where they are greater than the PSE or less than the PSE, it seems to me that it depends on whether we're worried about biological risk to the stock or economic risk to the fishermen, and so, if the PSE is high, that means our estimates are unreliable, and so, if our estimates are unreliable, if I want to protect the stock, then I would want to go ahead and trigger management action to protect the stock, if my PSE is high, and I don't want to risk damaging the stock if my estimates are uncertain.

On the other hand, if I am interested in protecting the value of the fishery to the fishermen, then, if my PSE is high, I have a lot of uncertainty, and so, in that case, I would not want to trigger my management action if I have a lot of uncertainty, because I would want to protect the fishermen. It seems like whether you want to trigger the management action with a high PSE depends on whether you are talking about trying to guard against risk to the stock or guard against risk to the economic impacts on the fishermen.

MR. HADLEY: If I could chime in, I think that's a good point, and that's something that, when we are presenting the SEP recommendations to the council, we can frame it in that manner, as far as when they are making these decisions on whether or not to use PSEs and how to use PSEs, and that certainly could be a recommendation that we could move forward, just in how this can be tackled and from different aspects.

DR. CROSSON: If you want to keep it synchronized with the way that MRIP reports these things, any PSE that is higher than 50 is when they flag it as being uncertain, and so that might be something that the council considers.

DR. WHITEHEAD: I think we're done with this one. 50 percent, I like that. At least that's a place to start.

DR. CROSSON: Either it did or didn't happen, right? 50 percent.

DR. WHITEHEAD: I am having trouble with one of the questions. In the middle of the second bullet, others argue that catch level estimates are more reliable for those species that have a lower PSE and that modifications to ACLs or allowable fishing behavior should be restricted only to those species whose MRIP catch estimates are less reliable, and should that be more reliable?

MR. HADLEY: I think the point being made there is kind of what Chris was getting to, whereas if you have -- I think the idea is you have certainty, and so you have a better idea of what's going in in the fishery with lower PSE species, whereas, if you have a higher PSE, you don't really know what's going on, and so you may want to implement those accountability measures.

Then the final question there is are there any other alternatives or sub-alternatives that the council may want to consider for post-season AMs that would better take into account social and economic

considerations? I know there is quite the suite of options there, but I didn't know if anyone had any other -- Is there something that's not covered and that sort of thing that could be added?

DR. WATERS: Combine some of this information of -- For Alternative 4, I would build in some information about PSEs, and I thought I had it figured out, and Chris's comment has confused me now. I am scratching my head, but I think it does make sense to -- If you're going to adjust -- If you're going to have an AM, if you have a very reliable catch, to me, I think you're justified in reducing next year's allowable catch to compensate, but, if you had a very unreliable estimate of catch this year, then I think it makes more sense simply to recalibrate the season, but not necessarily change the ACL for the next year, or at least that was my thinking before Chris made his comment.

DR. WHITEHEAD: I have a question for Jim. Are these part of Jim's comments that he has already typed up, or he addressed something else, right?

MR. HADLEY: Jim addressed the Science Center report and the fishery performance reports, and so these aren't part of those comments.

DR. WHITEHEAD: My question for Jim is if he's able to type up his comments on this one briefly and send them to me, before he's unavailable tomorrow.

DR. WATERS: I will try to send a few thoughts to you, yes. Then you will have to decipher them to see if they make any sense.

DR. WHITEHEAD: Thank you, Jim.

MR. HADLEY: All right. If there are no further comments, that was the real brain-buster of an action, and so the other ones are a little bit more straightforward, but I appreciate everyone hanging with me there. Moving along to Action 3, and this is the final one covering the snapper grouper fishery, but Action 3 would announce starting and end dates before a season starts, and so, right now, we do have season start and end dates for black sea bass and red snapper, where the National Marine Fisheries Service announces ahead of time the start and end dates in the Federal Register, and, essentially, those dates are static, and they don't -- The fishing will start at the beginning of whenever the fishing year is, and it will end on the date that NMFS projects the ACL to be met.

Alternative 2 would potentially add fishing season start and end dates to other fisheries, and, in this case, the season would start at the beginning of the fishing year and end on the date that NMFS projects the recreational ACL to be met, and there is two sub-alternatives here. One, the council could apply this to all snapper grouper species, or, under Sub-Alternative 2b, this would apply only to those snapper grouper species that exceed ACLs at least one time in the past three years, and so kind of a caveat there.

I will mention that one of the season options, and it doesn't have to be limited. It can be 365 days. I mean, it doesn't have to be shorter than a year. If the projections say that the recreational ACL is not going to be met, then the fishing season could be the entire year, and, in recent years, that's the way it has been for black sea bass.

Looking at the scoping comments received, there were two comments supporting setting a fixed opening and closed date for all species at the time that -- That cover all snapper grouper species, and so two questions for the SEP. Should the council consider Alternative 2 in either of the sub-alternatives as their preferred course of action? Are there potentially other sub-alternatives that the council should consider? What are the economic and social benefits and costs associated with either of the alternatives?

There again, thinking about, earlier, we were mentioning how sometimes providing some certainty could be helpful to the recreational sector, as far as being able to book trips and that sort of thing, and so that's kind of what that question is getting at, and potentially other social and economic benefits beyond the for-hire sector. I will scroll back up to look at Alternative 2, since the first question covers that. There again, you have implementing a season start and end date ahead of time, and this could apply either to all snapper grouper species or just for snapper grouper species that have exceeded the ACL at least one time in the past three years.

DR. WHITEHEAD: In general, certainty is a good thing, for the for-hire sector and the private sector, and so I'm in favor of certainty and announcing start and end dates. I don't see why there would be a start and end date for a species that had not exceeded the ACL in the past, just following the principle that there is no point in adding lines to the Federal Register when you don't have to.

DR. CROSSON: That's the note that I had written down when I looked at this, although the comments you get in the Federal Register are often interesting.

DR. WHITEHEAD: I'm not sure about the last part of Sub-Alternative 2b, at least one time in the past three years.

MR. HADLEY: If I could, so would you suggest a different timeframe, or just if it does exceed its ACL than consider these? What could be some of the other alternatives, or sub-alternatives, besides three years?

DR. WHITEHEAD: The principle is, if the recreational sector busts its quota and exceeds its ACL, then it needs to be accountable to that, and so that's a -- Personally, I think, if it happens, then you have a season the next year.

DR. YANDLE: Why would you want to delay it or make it more complex? You want to start getting the situation under control as quickly as possible.

DR. WHITEHEAD: Yes, and, I think, all things held equal, ignoring the PSEs and all those other complicating factors.

DR. WATERS: For Sub-Alternative 2a, is there a large administrative burden for having to announce an opening and ending date for every species?

MR. HADLEY: I would think that there would be. I would have to defer to some of our NMFS counterparts, who aren't here at the moment, but, yes, I would think to go ahead and project for each species in the snapper grouper complex a season, and you have many species that aren't hitting their ACLs, and so that would kind of default to an all-year season, so to speak, but there

are several species that do need to be constrained, and so, yes, that would certainly add an administrative burden to managing these species.

DR. WATERS: Okay. Then, for something like Sub-Alternative 2b, let's say you have a species that did exceeds its ACL at least one time in the past three years, and so you would have to have a starting and ending date for that species. Then, the following year, it stays within its ACL, and then you have three years in a row where it did not exceed its ACL, and then do you not announce a season?

MR. HADLEY: I think, yes, that would be correct, and so there would not be a season.

DR. WATERS: You would be in a situation where, for a given species, some years there would be an announced season and other years there would not be, correct?

MR. HADLEY: Yes.

DR. WATERS: That could add to confusion on the part of everyone, all the fishermen. They may never know exactly what the deal is, right?

MR. HADLEY: Right, yes. That certainly could add to some uncertainty and just as far as not knowing ahead of time what's coming down the pipe, absolutely.

DR. DUMAS: For those species that are co-located, located together, then, if you change the season for one and not the other, is that feasible? I mean, you couldn't really do that, could you, because you send down your hooks and you get what you get, right?

MR. HADLEY: Right, and it can certainly happen, and it does happen, but you can certainly bring up the issue if you increase regulatory discards kind of as an unintended consequence of that, and so that's certainly something to think about, as far as species groupings and what have you.

DR. DUMAS: Right, and so it seems that this could increase discards. If you're not worried about discards, then could you just go with just a season for everything and just use bag limits on different species? That way, the season is the same for all of them, or even a year-round season for everything and just regulate through bag limits.

MR. HADLEY: You certainly could. I am just thinking that's -- No, we do have seasons for specific species, but that is possible, but, there again, you're going to have to -- You're going to have those species that reach their ACLs fairly quickly, even under -- For snowy grouper, I think it's a one fish per vessel limit, and they still reach their ACL within a season, and so you're going to run into some kind of choke species there, if you open it up for everything year-round, even under low bag limits or vessel limits for those kind of choke species.

DR. DUMAS: So you would need to have regulation beyond bag limits. Okay.

MR. HADLEY: All right. In thinking about some of the social and economic benefits and costs associated with the alternatives, John, you were talking about some of the certainty can be helpful for the private recreational and the for-hire sector, in that respect, and that would be a positive outcome.

DR. WHITEHEAD: Yes.

MR. HADLEY: All right. Are we good for discussion of Action 3? I am seeing some head-nods. John, do you have what you think you need for that portion?

DR. WHITEHEAD: I have typed some words.

MR. HADLEY: Sounds excellent. All right. We'll move along. This is moving over to the Dolphin Wahoo FMP, and these are very similar actions, looking at revising the post-season accountability measures for dolphin and wahoo and also, there again, getting back to that seasonal potential -- Or announcing a season ahead of time.

Currently, the post-season accountability measures, you would retain the current post-season accountability measures for the recreational sector for dolphin and wahoo. In Alternative 2, you do not specify post-season accountability measures, and so you would be removing them, and Alternative 3 would only specify post-season accountability measures if, here again, we are looking at our suite of options, and this is very similar to the previous Alternative 3 that we looked at, looking at what is the trigger, so to speak, when the accountability measure would go into place.

In 3a, you are looking at a three-year geometric mean. If the ACL is changed, you would move to a multiyear geometric mean. In Alternative 3b, you're looking at a sum of the total over the past three years. There again, it's comparing the sum of recreational landings over the past three years to the sum of recreational sector ACLs over the past three years. Sub-Alternative 3c, this is looking at whether the recreational ACLs are constant and recreational landings exceed the sector ACL in two of the previous three years or exceed the total ABC in any one single year. Then Alternative 3d is the total ACL is exceeded. Then Alternative 3e is the stock is overfished based on the most recent status of the U.S. Fisheries Report to Congress.

In Alternative 4, this would implement a post-season accountability measure which would reduce the recreational ACL the following fishing season, and Alternative 5 is very similar. However, the AM -- If the AM was triggered, it would reduce the length of the recreational fishing season, and so, in Alternative 4, you're looking at potentially reducing the ACL. In Alternative 5, it's potentially reducing the recreational fishing season.

We have discussed -- These are very similar to what we discussed in the action for snapper grouper, but, in this case, are there other alternatives or sub-alternatives that the council ought to take into account for implementing as post-season AMs that would better account for social and economic considerations? You have your suite of options here, and there is the discussion of the PSEs, in this case, but that's going to be your differences.

DR. WHITEHEAD: The document says that until now the recreational sector has not exceeded its ACL for either species, and does that mean that now the ACL has been exceeded, and so there is a problem?

MR. HADLEY: The ACL, the recreational sector has underharvested its ACL, because, particularly in dolphin, a good chunk of the ACL goes unharvested for the recreational sector. You might have a little bit of a preventative aspect here, because, with the revised recreational landings,

we don't have a new ABC, particularly for wahoo, but, if the old ABC control rule is applied to the new recreational data, you may have -- You are likely to have some constraints there, where the recreational sector may be harvesting over its ACL, where these accountability measures may be triggered in the future, but, in the past, no, it has not been an issue.

DR. WHITEHEAD: Does it look like the new estimates are above the ACL for dolphin and wahoo?

MR. HADLEY: For dolphin, they're going to be getting a lot closer. Wahoo likely is potentially well over. There again, that's to be determined, as far as a certain answer to that, but just if the old ABC control rule was applied to the revised MRIP landings, you are looking at some constraints there, or likely constraints there.

DR. WHITEHEAD: I apologize for making you repeat this, but what's the -- In Alternative 1, what's the current post-season accountability measures for these two?

MR. HADLEY: I just saw it, and it totally slipped my mind. I will have to get back to you on that, as far as what the current is. I will have to go back and look at that up.

DR. WHITEHEAD: If there's nothing wrong with the current, why do we need to look at it? In other words, is there some reason that the current aren't --

MR. HADLEY: I think the idea, there again, is looking at standardizing post-season accountability measures across species, and so that would be one of the main reasons there to do that, and so, if you wanted to say, okay, the council wants to look at this comprehensively and say we want the majority of our finfish species to have the same recreational accountability measure, then they would potentially look at these different alternatives.

DR. SWEENEY-TOOKES: That does circle us back around to a point brought up at the beginning of this discussion, which was it's the unpredictability and the changing nature of all of these requirements that are really problematic for the fishing communities and the recreational sector, is what we've been hearing in all these comments, and so having that continuity between the snapper grouper and the dolphin wahoo seems like a very good idea.

DR. DUMAS: I have a question about the difference between Alternative 4 and Alternative 5. Under Alternative 4, if the post-season accountability measure is triggered, reduce the recreational annual catch limit by the amount of the overage in the following season, and okay. If the annual catch limit is reduced, how would that be -- Suppose, in the following season, the fishery bumps up against its reduced annual catch limit, and how would the annual catch limit be enforced? Would it be enforced by immediately ending the fishing season, or how would that be enforced? If that's the case, then that's just a reduction in the fishing season, and so how is it different from Alternative 5?

MR. HADLEY: Right, and I think that's a good question. The way I would envision this working is that, if you reduce the ACL and the recreational sector met its ACL again, that overage would probably roll -- You would end up reducing again in the following fishing season, and so it could kind of snowball, so to speak. There is no specification now, and that could be something that, if

this is pursued, Alternative 4 and 5 may need to be further developed to account for that, so you don't end up in this kind of snowball situation, where you're getting a smaller and smaller ACL.

DR. WATERS: Chris, I think the difference is that, in one case, if you have an overage, then the next year you penalize the fishery by reducing the recreational ACL, and you would have to adjust the length of the fishing season for whatever length of time is expected to land that new ACL, but, in the second alternative, all you're doing is recalibrating the length of the season, but you're keeping the ACL the same, and so you're not penalizing people for -- You are not reducing their catch for exceeding the ACL the previous year, but you're just reducing the length of the season in hopes that you can keep their total catches within the ACL this year.

DR. DUMAS: I see. Thanks, Jim.

DR. WHITEHEAD: Jim, is that keeping their catch within the ACL this year by suggesting to them that they'll be penalized next year if they don't, or is that reducing their catch next year within the season?

DR. WATERS: I'm not sure -- What did you just ask?

DR. WHITEHEAD: I don't know. Never mind. I will think about it.

DR. WATERS: Going back to a point that I made before, I think that Alternative 4 makes a lot of sense, if you can really estimate very accurately what the total catch is, and so, if the recreational ACL is 100,000 pounds, and you estimate it's 110,000 pounds, that they actually caught 110,000 pounds, you know pretty closely that that's an accurate estimate of catch, 110,000 pounds, and you penalize them the next year. In another case, if the estimates of total catch are wildly varying, due to say sampling error, or sample size, then you don't really know if the estimated catch of 110,000 pounds is just sampling error or is it a real overage, and so, in that case, in Alternative 5, what you might do is just choose to reduce the length of the season, but you don't necessarily penalize the fishery in terms of reducing the allowable catch.

MR. HADLEY: If I could go back, John, to your original question with the post-season AM, essentially, landings are monitored for persistence, and then, if deemed necessary, the recreational season is reduced, and so that's the way it stands right now. Really, getting back to the kind of rationale for considering this, it's looking at the if you're trying to standardize AMs across finfish species, and that's kind of the impetus for including dolphin and wahoo. It's not necessarily that it's not necessarily working right now, and it's not really being triggered, just because the recreational sector is not harvesting its ACL, and so that's to answer your first question of what the current one is.

DR. WHITEHEAD: I have another question, too. Thank you for that. With the sub-alternatives, 3a through 3c, and the similar ones above, is that an attempt to deal with the sampling error and the PSEs, that if we have an unreliable catch estimate and the ACL is exceeded, you want to wait until next year and see what happens again or wait three years and see if the average is greater?

MR. HADLEY: Potentially, yes. That's one of the ways to look at it, and, there again, it's kind of tackling it from different angles, the geometric mean and doing the sum over three years, and then the Sub-Alternative 3c, where you have multiple years, unless the ABC is exceeded, and so,

yes, it's kind of looking at some of the uncertainty and just trying to get, particularly in the dolphin fishery, if you were to see a -- It tends to be very variable from year to year, and so you'll have a year where there is a particularly large spike in landings, just because the fish may be available, or it's a particularly good year, and then that might go right back down again, and so kind of looking at potentially accommodating some of those premium years and not penalizing the fishery just because it has one year that is way outside of its average on a very short-lived species.

DR. WHITEHEAD: I apologize if it took me too long to understand what those were about. I have a question for Scott now. Will we have time tomorrow to talk about the statistical issues, after we've thought a little bit about it, before we write up what we're thinking, or do we have to be thinking anything on those issues?

DR. CROSSON: No, there's time, I would think. Nothing is final until it's written up and approved by the committee.

DR. WHITEHEAD: It seems to me that this is more complicated than issues that we usually deal with.

MR. HADLEY: All right. If there's no more discussion on Action 4, we can move into Action 5. Here again, this looks into announcing starting and ending dates before the season starts for dolphin and wahoo. Currently, the fishing year is the same as the calendar year, and there are no in-season closures for the recreational sector for either species. There again, these species are not reaching their current ACLs, and so there is no reason to implement a season or any sort of accountability measure at this point.

Alternative 2, in this case, NMFS would announce the recreational fishing season start and end date, and the season will begin -- It will start at the beginning of the fishing year. In this case, it will be January 1, and it will end on the date that NMFS projects the ACL to be met. There again, if this were implemented in dolphin and wahoo, it would be an all-year-round fishery at the moment, and, there again, looking at the reason that this action is included for dolphin wahoo, it's getting at that consistency issue across all species, potentially.

A couple of questions for the SEP. What are some of the social and economic benefits or costs associated with having a season or not having a season? In the past, the recreational sector has not exceeded its ACL. However, as I mentioned earlier, the revised recreational catch estimates indicate that this could be a possibility. Even though it hasn't occurred, should the council implement measures in the event that it could happen, and so sort of a preventative measure.

DR. SWEENEY-TOOKES: When I looked at the wahoo numbers in 2016, those were actually really close to meeting that limit, and it seems to me that it's not a bad idea to establish the idea that there is indeed a season on wahoo, so that it's at least in the public consciousness before they start to have a shortened season, if that shortened season is indeed coming up down the line, which it looks like it probably is.

MR. HADLEY: Yes, and, in this case, it would be adding kind of a tool to the toolbox, as far as how it could be addressed.

DR. DUMAS: These fishing seasons begin at the, quote, beginning of the fishing year, and is the beginning of the fishing year the same for each of these species, or is the beginning of the fishing year biologically determined and differs across the different species? The reason why I ask this question is that I would not want all the fishing years to begin at the same time for all these species, and so, if possible, because then, if some type of accountability measure is implemented across all the species, and they all close early, or at the same time, then the fishermen are left with no options, whereas, if the fishing seasons are staggered, then some may be closed at some part of the year, but others are not, and so you've got at least something that you can fish for at all times, so that you can maintain your charter business or have something to go chase with your private boat, if you have a private boat, and so do the fishing years begin at different times for the different species? That is, I guess, my first question.

MR. HADLEY: For the most part, they tend to be on the calendar year. There are several exceptions, particularly for -- Well, in the snapper grouper complex, and there can be different fishing years for the commercial and recreational sector. There is a few examples of that as well, but I will say that the majority do run on the calendar year, but there would be a handful of species that do not in the snapper grouper complex alone.

DR. DUMAS: In that case, I would be concerned about the cumulative impacts of multiple season closures going in and being triggered for multiple species all at the same time, so that then, if that were to occur, then some of the recreational sector, charter sector, may be left with nothing to fish for at a particular time of year, whereas, if the fishing seasons were staggered, then you might have the same short seasons for each of the species, but they occurred at different times of the year, so that you're able to fish for something throughout the year, rather than having a period of time where all of the season closures were in effect at the same time, and that's something we want to avoid. We want to avoid situations where you have all the seasons closed at the same time so that it prevents any fishing.

DR. CROSSON: Chris, I'm thinking of it coming from the other angle, though. I mean, if it's truly a single species fishery, or something at least that has a -- That does not have a high release mortality, then I agree with you. If it's something that is part of these multispecies fisheries, where significant numbers of discards happen, then I'm actually -- Biologically, it would be better to have lots of things closing at the same time, so that there's not as much activity and you can reduce the discard mortality, and so I'm not sure that I completely buy -- I guess it's just two different priorities, biological versus economic.

DR. WHITEHEAD: Does our report go to the SSC, or does it go straight to the council?

DR. CROSSON: It always goes to the SSC.

DR. WHITEHEAD: Yes, and so I think our charge is to talk about -- To recommend what Chris said and not what Scott said.

DR. YANDLE: Thought we could certainly flag that this something that the SSC may want to weigh-in on and just flag the issue for them.

DR. WHITEHEAD: Yes, and so we could say something, and then it goes to the SSC, and then Scott and Tracy could say that we recognize the biological concerns, and the biologists could say, yes, that's a big deal.

DR. YANDLE: One thing I was remembering, just the last time that we talked about staggered seasons, as I remember it, was with some of the work that Kari had done looking at actually some of the restaurant industry, and it was much more of the commercial sector, and they were really talking about they really needed that predictability of knowing that they could get some kind of supply, and I don't think we have any formal data on that for the charter industry, but I imagine that it would be very similar, and it may be worthwhile checking with them even informally, but I agree that logically the staggered seasons seem to make sense, based on what we've seen in other situations.

DR. DUMAS: Scott, I agree with you about the snapper grouper, or the species that are located together, that it might make sense to have your season closures coincide, but I was really thinking of the season for snapper grouper relative to the season for dolphin wahoo or something else, and we were looking across a wide range of species, but we just don't want the season closures to coincide, if we can avoid it, so that the fishermen have some option. If all snapper grouper are closed, at least they can maybe do a dolphin wahoo trip, if they can't do a bottom-fishing trip.

DR. CROSSON: I don't know if this is a question the council asked, looking at these comments, but, if the fishing season starts on January 1 for any fishery in the South Atlantic, it tends to -- Then you think that there's going to be a closure halfway through the year, it tends to favor Florida before it goes up the coast, and that's certainly the case for dolphin wahoo. Our fishery for that is in January in Florida, but I would never even think about doing that off the Carolinas.

MR. HADLEY: That's a good point, and the council has discussed in the past setting a different start date, and that tends to be kind of North Carolina is of one opinion, and Florida is of the other, and, ideally, they will meet in the middle, where everybody has an acceptable shot at those fish, and so that's a good point. Are there any other questions or any other comments on Action 5? Those are the five actions in this amendment, as they currently stand. That's it for now. John, do you think you have got everything? Do you have words to put down?

DR. WHITEHEAD: I think it would be great to spend a little bit of time tomorrow and kind of summarize some thinking, if we have time.

DR. CROSSON: We will have words tomorrow, John.

MR. HADLEY: Yes, I think we should have time. Just thinking about the agenda, we should have time to circle back, if we need to, potentially under Other Business or what have you, but they can certainly do that.

DR. WHITEHEAD: I think what I would need with this one is -- Not so much wordsmithing a paragraph or two, but thinking about the sort of things that the SEP should be saying about this and figuring out what kind of general thing we could say, like we usually do. We usually just type up generalities and basic principles, and I'm at a loss for those right now. I do have some suggestions to throw back at you all for future analysis, but that's something that I will just type up and see what everyone else says.

DR. CROSSON: Is that the end of this, John?

MR. HADLEY: It is. Yes, that's the end of this discussion item.

DR. CROSSON: Maybe we should probably stop for the day, I think.

MR. HADLEY: There were some brainteasers in there, to say the least.

DR. CROSSON: I don't know if anybody needs to check-in or what, but this is a good breaking point, I think. I guess we can continue tomorrow, and so we'll just stay on the agenda as it's sketched out right now, and so we'll have the snapper grouper economics tomorrow morning, unless you want to start for a few minutes tomorrow morning and continue this discussion. If you want to wordsmith a little bit, we can make time to do that, or we can do it after we do everything else tomorrow.

DR. WHITEHEAD: I would think after.

DR. CROSSON: I think that would probably be --

DR. WHITEHEAD: In case other stuff -- In case there's more discussion than we think.

DR. CROSSON: What time does the SSC start? Is it 1:30 tomorrow? Is that right? Okay, and so we should have enough time to get through the stuff tomorrow. Thank you for taking such copious notes. At this point, we're going to recess until 8:30 tomorrow morning. We are in recess until 8:30 tomorrow morning. Thanks.

(Whereupon, the meeting recessed on April 8, 2019.)

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APRIL 9, 2019

TUESDAY MORNING SESSION

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The Socio-Economic Panel of the Scientific and Statistical Committee of the South Atlantic Fishery Management Council reconvened at the Town & Country Inn, Charleston, South Carolina, April 9, 2019, and was called to order by Chairman Scott Crosson.

DR. CROSSON: We are restarting our meeting, and so the first thing that we have on our agenda is -- We don't have to do any public comment or anything, right? There is nobody here anyway. We can do it at the end, if there's anyone here. The first thing that we have to do this morning is we're going to start by going over the technical memorandum on the economics of the snapper grouper fishery. Is anybody logged in from the SEP? Is either Chris or -- So both of them are not here this morning? Okay. So it's just the folks in the room. Okay. We're going to start that again,

and Dr. Christopher Liese, another economist from my group in Miami, is going to begin and go over some of the stuff that he's been working on down in Miami.

THE SEFSC TECHNICAL MEMORANDUM ON THE ECONOMICS OF THE COMMERCIAL SNAPPER GROUPER FISHERY

DR. LIESE: My name is Christopher Liese, and I'm with the Social Science Research Group in Miami, Florida, in the Southeast Fisheries Science Center there, and I'm an economist. I'm here today to present a little bit about the economics of the South Atlantic snapper grouper fishery for the year 2016 and, probably more importantly, about the methodology that's underlying that production of those numbers.

Our group has started a new series of annual reports, and they are based on what we call the Coastal Logbook System, which has the snapper groupers, the Gulf reef fish, the mackerels, and it also has some sharks and dolphin wahoo in it, and so it's that data stream that is the same for all those fisheries that we were working on, and the aim was to create annual reports that will be coming out year after year, as the data trickles in and we can turn something out, and so the trick was to try to automate this, so it will be replicable without too much effort.

The intent is similar to the shrimp reports that we've been putting out for almost ten years now, though we're always behind, and so I tried to learn from that effort a little bit. I should say that these reports are intended, and, again, this is from experience, as reference manuals for someone who is sort of versed in fisheries, and a little bit in economics, and so, with the shrimp reports, we put in a lot of interpretation and prose, and that slowed down their production, and so, right now, I'm on the 2014 data year for South Atlantic shrimp, and I'm three years behind, and it's just because there is too much wordy stuff in there, and so, with these reports, I aim to create standardized, quantitative results that take the confidential data and turn them into the results that would be available and useful to people who know what they're looking for and not necessarily the general public, and so it's -- They are built up with six pages of standardized results for each SOI, and I will get there, and then there's a chapter which is just the methodology to read up on.

I am hoping that these reports will be timely, that really every year we'll be putting out these three reports, one for the South Atlantic snapper grouper, one for the reef fish fishery, and one for the mackerel fisheries. The outline of my talk is first I will talk a little bit about the survey design, and that's where the data is coming from, and then about this economic reporting system that we built using R, and then I will switch to the snapper grouper economics themselves.

Our survey questions, the conceptual idea behind it is basically to generate financial statements that are also provided for public companies or the like, and so we're looking to generate basic data for structured as financial statements, cash flow statement, income statement, and balance sheet, because, in a way, they're not the end results, and the analysts can use parts of that to then generate measures that they find interesting, and so it's not the final interpretative data, but it's just sort of like stepping stones standardized that people can use.

I don't want to spend too much time here, but, a cash flow statement, on the one hand, you have all the incoming cash flows, and those would be revenue from snapper grouper, from selling the

fish, and there would be other commercial fishing revenue, and some of these boats do other things, like for-hire fishing.

On the outgoing side, you have the payments for the variable costs for fuel, crew, and other costs, and then the fixed costs would be more infrequent during the year, overhead and loan payments and the like, and the difference between those two, the outgoing and the incoming payments, would be your net cash flow, and the cash flow statement is always a period of time. Usually, in the financial industry, it's quarterly or an annual. For our vessels, we would do annually, usually, but it could also be a trip level.

Another type of statement is the income statement, and it's very similar to the cash flow statement, but the big difference here is it's a little bit more economic rather than the financial perspective, and so we want to account for those type of things that do represent using up value in the production process, but that are not necessarily generate a cash flow in that moment, and the typical examples are depreciation and an owner's labor.

Both of those things represent value being used up in the production process, and so you have to account for them, but they don't have a cash flow that is -- You know, owner's labor, they don't necessarily pay themselves, and it would show up in the profit, and so, if you're comparing vessels with hired captains and vessels with owners onboard, it just would be an unfair comparison if you don't somehow account for the fact that the owner is contributing time to the enterprise.

My favorite measure in the income statement is probably this net revenue from operations, which is the difference between the revenue from operations, which is the seafood sales, and then the cost of operations, including depreciation and the vessel overhead, and that gets you net revenue from operations, and it really represents the intrinsic benefit that is being produced by the fishery. You can go a little bit further, and you can add non-operating income, and this could be from totally different -- In the Gulf, there's a lot of people dabbling in the oil industry, or there might be these BP payments, and then there is finance payments and so on, and so an individual person will be interested in their profit, but, as an economist, net revenue from operation is usually what is most interesting.

There is a balance sheet, and it's mostly vessel gear values, and it could be shares or permits and rights that sometimes have value too, and, on the other side of that balance would be the liabilities, loans if they have outstanding loans on the vessel, and the difference between the two is the equity, and the balance sheet is a point in time, and so that's sort of the conceptual background that motivates our surveys.

This survey for the coastal logbook fisheries is all layered on top of the trip logbooks that we have in the Southeast, these coastal logbooks, and they've been around since 1993. The logbooks, the first part of it, the top part is basically vessel identifier and when the trips happened, and the second part is effort and gear that was used, and the third part is then harvesting what type of species were caught where and with what gear and in what depth, and, for everything that follows, I am assuming that these logbooks, which are mandatory for all trips, sort of represent a near census, and the truth is they are not always 100 percent complete, but they are usually somewhere between 95 and 99 percent, and sometimes 102 percent, when you compare them to dealer-reported fisheries, and so there is always variations in fishery data, but they are pretty good for the reef fish, the snapper grouper, and the king mackerel.

It doesn't work so well for Spanish mackerel, because a lot of it is captured in state waters, and I don't know -- No one can tell me if they have to report or not, but they don't, and so the Spanish mackerel is probably only like 50 percent in the logbook, and then shark and dolphin wahoo are also caught in the HMS and in state waters, and reporting is not so good either, and so they're only partial, but, for the other three that I focus on, it's a fairly decent assumption. It's not perfect, but it's decent.

In 2002 in the South Atlantic and in 2005, Jim Waters and Larry Perruso added a fourth section to those logbooks, which collected trip-level costs, like ice, bait, gallons of fuel, hired labor, if it happened, and it was added on the logbook for everyone, but only about 20 percent of the vessels were selected each year to report the economic data, and so it's been going on for quite a while. The sampling design changed a little bit over time, and even the questions changed a little bit over time.

I sort of took over this data collection in 2014, and, since then, we have simplified the stratified sample to just three strata that we have highly active vessels, active vessels, and inactive vessels, based on the last two years of logbook reports, and we sample at 30 percent, 30 percent, and 10 percent, and so it's a stratified sample, so we don't get too many no responses. We focus on the people who are actually taking trips, because there's a lot of permits out there which don't fish at all.

One note is that, on the logbook, there might be many different species, but you have one economic observation at the bottom, and so it's just getting towards this idea, which I will harp about, is like the economic data is always more holistic than single species. When someone is sampled in December of a year, they are supposed to report every trip that they take for the next year economic data on these logbooks, and then, after that year is over, we send them an annual supplemental annual cost survey by mail, and so that's a mail survey, and the primary goal is to get the fixed costs, those costs which are above and beyond the fuel and gear that was on the trip form, but the other thing is that these vessels do so many other things that just snapper grouper fishing, and so, in a way, we also replicate the variable costs, because we're asking at a vessel level, because most fishermen cannot break out how much fuel they used in different activities, and so we ask holistically at the whole vessel level. We ask them what activities they did, so we can sort them and adjust for it and then ask for their fixed costs.

Implementation-wise, as I said, the trip data is part of the logbook system, and so we piggy-back on their processing a lot, and they send out to a contractor for data entry, and that comes back as data, and then we have validation routines, and we look at everything that looks strange, and we do a lot of send-backs, and we also, since 2014, really enforce that people do submit these trip data, economic data, when they have been selected, and so we're getting a pretty good response these days. That's an ongoing process, and we have staff for that.

The annual data collection is usually run between January and August, and I usually hire a student for helping with mailing and data entry, and the validation, again, there is a lot of calling back fishermen and asking about this looks strange, and this is weird, and please tell us what you meant. Is this right, or was this just a mistake?

This data, as I said, has been existing for a long time, and it's been used already quite a bit, but usually on an ad hoc basis, and it's been used to estimate cost functions, and you might know that it was also used a lot by Jim Waters in his simulation model that guided a lot of the amendments that were done for the snapper grouper fisheries in years past, but no one has ever done sort of really a systematic reporting on the data, and it's best to try to illustrate here I think why that is, and so the overall logbook has been 30,000 and 50,000 trips a year, and that is from like 1,000 to 2,000 vessels, and any analyst that wanted to do something with this data was usually quite overwhelmed by it and just pulled out those observations that were relevant to their question at hand, and so it might be Gulf red snapper, and you pull out the trips that do red snapper, the vessels that did red snapper, and then you have an economic sample on that, and there's a lot of cleaning going on, but, when you're done, you don't pass that cleaning back into the main data.

When someone might do something else, all of that is lost, and they do it again, and so we tried to develop a systematic approach that cleaned the data itself, and then build a system that extracts the clean data based on what we call these SOIs, the segments of interest, that you might be looking at when you're doing any one particular job.

There is nearly an endless amount of number of ways that you can slice and dice the logbook data, and so, probably five years ago, I raised some money to get this project going, and I was very lucky in hiring Elizabeth Overstreet, who has the right skillset, because, these days, with R, you can just program all this cleaning, and so, with the shrimp reports, I had been doing most things in SaaS and then moving it to Excel, and there was a lot of like tedious and mechanical work each year as I was doing the same thing over and over, and so I realized that you could, in principle, program it, but you just had to be very clean about it, and it would be a long process.

Liz worked for us for about three years and built this system, and the software tools have developed too, and so it got easier and easier, and the nicest thing is R has these packages called Niter, where you can then embed programming in a LaTex document that gets kicked out as a PDF, and so it goes straight from data, once you have programmed it, into a PDF, and so, with the shrimp data, I was always -- When I had my report finished, I was so sick of looking at shrimp data that I didn't have -- It was very hard, at that time, to start working on the text, and so my dream was always to have the computer do everything for me and assemble the report, and the first time I really look at it is when I look at a report to look at the data and not spend time running averages and making graphs and those sort of things, and we sort of succeeded. Sadly, Liz left us in the fall, for a better paying job in the medical sector, because she had a great skillset, but, so far, the system that she built still sort of works.

The important thing is, after we've done a lot of cleaning, you define your segment of interest, and so, in all of that big data, you -- For instance, I asked her, let's take a look at the Southeast lionfish fishery, which obviously doesn't really exist, but we noticed that there were some data that showed that people were selling these, capturing and selling them, and so she could go in and -- I think this was 2014 data, and she pulled out those 310 trips, and all of this was automatically, and so I asked to look at that segment, and she ran some code, and she ran the Niter code and produced sort of like a six-page diagnostic for me that we designed, but it took ten minutes to run it, and you can run it basically -- I probably need thirty minutes to run it on any time of segment of interest that's in the data.

The goal is basically of this diagnostic report -- That's not yet the report that is for the public, but this is for me, mostly, to evaluate what our cleaning routines are doing if the -- Is this SOI meaningful to report to begin with, and a lot of it is looking at if our econ data is representative, and so, if the sample that we have is representative of that population, and, again, that's not the general population.

That could be any SOI that we just came up with, and so that could be southern Florida king mackerel, and so things that might look clean at the overall level might not be so representative when you drill down into any one subset, and so a lot of what this diagnostic does is just make sure that it's worth reporting, and, similarly, on the trip economics level, we have these cleaning routines, and, while they make sense overall, which is where we designed them and checked them, in any one SOI, they might be driving the results, and so we have, in the diagnostics tables -- They allow us to see what is the impact of our cleaning routines as we fill in gaps or impute missing values and the like, or estimate things, and so I'm not going to go into the details of cleaning, but there is a bunch going on, but we check it.

Then we have the trip-level economics, where they get the statistical estimators. Because it's stratified with different inclusion probabilities, you have to recalculate sort of the weighted average each time for each SOI that you have, because, again, you don't know in what strata your vessels happen to be, and we sample before anyone takes a trip, and so you will not know if someone is a gag grouper fisherman until after the year, and so it's automatically done, but it's quite complicated, actually. Then we do exactly the same thing for the annual vessel level economics, and that is sort of in the diagnostic, and, with that, I turn to the snapper grouper fishery.

DR. CROSSON: Do you want to pause? Does anybody want -- That's a lot that Chris just went into.

DR. LIESE: Yes, and let me just jump here. The diagnostic is more for me, but a lot of it is the same as -- The report then generates six pages of results, and I will go into those and explain them in the context of the snapper grouper fishery in 2016, and so that is the result, those six pages, and, in the report for any type of SOI, and say you're looking at the gag fishery or the overall fishery or the yellowtail snapper, you will have those same standardized six pages of results.

MS. WIEGAND: We have had some SEP members join us on the webinar, and so I just wanted to let Chris and Jason know that I'm going to unmute you guys, if you want to make sure that you can hear us and we can hear you. Both of you are now unmuted.

DR. MURRAY: I just wanted to make sure that you guys could hear me.

MS. WIEGAND: Wonderful. Chris, can we hear you as well?

DR. DUMAS: Good morning, folks.

MS. WIEGAND: Excellent. Thank you, guys.

DR. CROSSON: Before we get into the results stuff, is there any discussion? Does anybody have any questions for Chris about that methodology? No? Okay.

DR. LIESE: This is the tech memo that is now out, and the one thing to realize about the snapper grouper fishery is these are all the species, and the highlighted ones are the top five, and the overall revenue in 2016 I think was $17 to $18 million, and none of these species is really like a significant fraction, and so each of them is small. I mean, the biggest one is yellowtail snapper, with $4.6 million, and so that's maybe a quarter of the fishery, but the truth is that one is almost its own fishery.

Most of that is out of the Keys, and so everything else is really mixed in, and so the report produces those six pages of results for eleven different SOIs, and then some gear-based SOIs in the appendix, but, the more I work with the data, the more I realize that, probably in most applications, it's really just the first one. The Snapper Grouper FMP fishery is the SOI that you want to look at, because everything else is subsets of that, and it just is very repetitive and redundant, and, from an economic perspective, it's pretty much the same thing, and so it could be truly a multispecies fishery.

For instance, if you look at gag, even on trips -- We define the SOI as you are harvesting one point of the species on a trip in the Southeast, and that's when a trip becomes a trip of interest, a TOI, and then any vessel that has one trip of interest would be a vessel of interest for that annual vessel level stuff, but take for instance -- On the overall snapper grouper, most species caught on a snapper grouper trip, 91 percent of the revenue is snapper grouper revenue, which means about 9 percent is other stuff, maybe king mackerel and the like. At a vessel level, it's 72 percent, and so, over the course of a year, vessels, snapper grouper vessels, get 72 percent of their revenue from snapper grouper, and so that's still fairly -- Your economics are going to be about snapper grouper.

If you go to another one of the top five species, like gag, even on gag trips, only 33 percent of your revenue is gag, and so only one out of three fish is gag on a gag trip, and so, really, the question is, is even the label of "gag trip" the right label? If you go to the vessel level, a vessel only gets 10 percent of its revenue from gag, and so, again, it's questionable if that vessel is really correctly labeled as a gag vessel, but, depending on your research question, it might be valuable, more appropriate, to use the gag, but, if it's more general understanding, you're probably perfectly fine just sticking with that very first SOI, which is sort of the snapper grouper fishery as a whole.

For that one, and every other SOI, there is six pages of results, and the first page summarizes the logbook data, and that's the context for the economic data. I should say a big disclaimer here, which is we clean up the logbook data for this purpose, and, if you're looking at how many millions of pounds and hundreds of thousands of this and that, it's going to be very close to what is the true number, but, if you want the numbers exactly, you should go to Dave Gloeckner and request those numbers, because he is the official source, and the numbers will never be identical if someone else pulls them out of the database, because there is always a couple of judgment calls, and the numbers won't be the exact same that are in the stock assessment documents and the like, and so I always say the context is there for the economics of it, and it's not wrong, but it's not going to be exactly what others are reporting in other reports.

The second page is then just the economics, the sample, and the first one is the population, everything that's in the logbook, what I'm calling the near census, and the second page is the trip level economics. The third page is everything in the logbook at a vessel level, and so you're adding trips that were not SOI trips, but that vessel is engaging in too, and the fourth page is the annual economics from our annual survey, and so that's at the vessel level, including fixed costs, and then we have two pages where we have a time series, 2014, 2015, and 2016, and now, to make the

economics comparable, they're in percentage terms of revenue, and there is a three-year average, which people requested, and we're going to work our way towards, I think, a five-year average, as we get more data, and so it will be a four-year average next year, and then a five-year average, and then we will stick to that.

That is the layout, and this is the first page, the trip level summary. In the snapper grouper fishery, in the logbook, there is 11,000 trips, about 500 vessels, and the total revenue they generate from SOI is $17 million, and that's down there. On those trips, they also catch $1.5 million of other species, and so, at the trip level, the snapper grouper fishery is specialized say at 92 percent.

That graph at the bottom, you can see that, for many trips, the majority -- It's almost 100 percent, and so they're only catching snapper grouper species, but there's going to be a couple of other ones that they might or might not be true snapper grouper trips, and some of these might be mackerel trips that capture an amberjack, and so they would have dropped into this group, but, most of the time, when I talk to regional economists, they say they want like the one-pound definition for anything they do. As an economist, I might do a 50 percent cutoff, that your revenue has to be above that, and we built that too, but we didn't report that, because it becomes much more interpretative when you add that.

There is a map of where these trips are taking place and descriptive statistics, and the average trip is 1.7 days long, and it lands about 500 pounds, and it has a revenue of $1,650, on average, and so that's context for our next results, which is coming out of the trip level economics. Out of those 11,000 trips and we had selected vessels that were responsible for 2,766 trips, and 2,711 responded, and, after our cleaning routines, were left with 2,612, and so that's our response rate. We sampled basically about 24 percent a priori, before we knew if they were going to be snapper grouper people or not, and they turned out to be snapper grouper people, and our response rate is about 96 percent, everything included.

These are the economics for that survey for those 2,600 snapper grouper trips. What is owner-operated is about 82 percent of those trips are owner-operated, and you can see the days at-sea, and the landings are here again, and these are derived from the sample, and so we actually have, in the bottom-right, the population mean. The days at-sea, on average, is 1.7, and, in our economic sample, it's 1.8, and that is going to be -- The truth is 1.7, basically, but our economic sample tells us it's 1.8 that would be our estimator, but, if you look at the 90 percent confidence intervals, they are between 1.5 and 2.1, and so clearly the truth is in there, but it shows you how much variation you get from a sample and our economic data.

That is one that you can compare, and you can see the revenue is $1,700, and then there is the various expenditures, and we estimate the OC, owner captain, time and the opportunity of the owner's time onboard, on average, for those vessels that have them, and we base that off of what they are paying hired crew, and that's our estimation routine, and, at the bottom, we estimate basically the margins of the trip, the trip net cash flow, what's left over after variable costs and the trip net revenue, when you take into account the owner's vessel time. We express this in percentage terms, in the graphs.

DR. WHITEHEAD: A quick clarifying question?

DR. LIESE: Yes, of course.

DR. WHITEHEAD: The owner's time is valued at the crew wage?

DR. LIESE: Roughly, yes. We don't have a separate question. On shrimp, I have a separate question, but, here, we have to extract it from the crew wage, yes, and, to me, it's a placeholder. It's one of the least firm numbers, and it could be higher, and it could be lower, but we need to put something in there. None of these numbers should be that -- I like to round it up to a percentage and never use a comma percentage or anything like that, because there is a lot of variation and noise, and so this is in percentage terms.

You can see the fuel and supplies are about 25 percent of revenue, and hired labor is 29 percent. If you add in the owner's labor, we estimate about 46 percent. Almost half of the value they generate goes to labor, and they are left with 29 percent as sort of the value that will have to cover the fixed costs. We have a couple other measures, the fuel price, the wage implicit that they are paying the crew, and productivity measures, in terms of like pounds landed per gallon or per crew day.

That is basically on page 2, and then the third page is at the annual vessel level, and so we have those 500 vessels, 509 vessels, that are snapper grouper vessels, and they took 11,000 snapper grouper trips, but they take another 3,900 other type of trips that are in the logbook data, and so, when you look at those trips as well, you see that the non-SOI revenue goes up to $6 million, and so these vessels generate $23 million of seafood revenue, and 73 percent of that is snapper grouper.

Now that we're at the vessel level, we can look at their permits, and I will just point out that, at the very bottom, quite a few have like for-hire fishing permits, and that's a common side-gig for many people, and we can sum up the -- We can average the logbook data at the annual vessel level, where the average vessel takes thirty trips, forty-six days at sea, and generates about $46,000 of coastal logbook fishing revenue.

We have some vessel characteristics in there too, but, again, that's all just context for our annual vessel level economics, which, again, is a sample survey, and so those 509 vessels, 132 were selected prior to the year start, and we have responses from 102, and, after cleaning and throwing out problem cases, we are left with 94 observations, and they then generate our second stream of economic data, which is our annual economic data for the fishery, and, in a way, as an economist, this is a little bit more useful, but the sample size is smaller, because this is really very holistic, and so, from this data stream, the owner-operated number is 98 percent.

About 12 percent of the vessels were active in the for-hire sector, and they report to us, and this is a fairly inexact measure, eighty days of commercial fishing, and that's much higher than on the previous page, but, here, people would include if they are going in state-level fisheries, and so it makes sense. The revenue is higher too, and that was $46,000, and so there is $10,000 additional commercial fishing, which could be blue crab or other things that are basically at the state level and not in our logbook.

They also report $11,000 of for-hire. Again, that's not everyone, and that's on average among these forty-nine vessels, and so some people do a lot of for-hire fishing, and a little commercial fishing, and they pull up this average. On average, vessels in the snapper grouper fishery are doing, in 2016, we're close to $70,000 of revenue. Their vessels were valued at about $93,000, and then

we have the breakout of the various costs that they had, and we can -- From a cash flow perspective, they were making about $10,000 in their bank account, but, once you add the fact that they have to pay themselves some sort of share for the fact that they're working their boat, and the depreciation, really the net revenue is close to nothing, or they are breaking even, and so there is no additional profit, which is sort of what we would expect in a regulated open-access fishery.

Again, in terms of -- There is graphs in the tech memo that put it in percentage terms, and fuel and supplies is pretty much exactly what the trip level was telling us, and the labor hired crew is 28 instead of 29 percent, and so that's close, and the typical fixed costs are 28 percent on top of that, and we estimate depreciation. With shrimp, I actually asked the question, and it never really worked out well, and there is a lot of noise, and so, at this point, what I'm doing is I'm just taking 5 percent of the vessel value to estimate the placeholder for depreciation, and so the shrimp fishery seems to point in that direction, and, for various reasons, 5, and it could be 4, and it could be 6, but 5 is just a nice, even number.

We calculate the economic return, where we divide the net revenue from operations by the vessel value, and you can see there is not that much economic return in this fishery, and, when you go to the three-year comparison, in percentage term, it's pretty much the same, and so this is page 5 of the fishery, and selected values from those first pages are basically extracted and reported for three years, and, for most analysts, I would basically recommend just using the three-year average, because you are just -- Since it's a sample survey, in any one year, there might be outliers.

If you go to the time series, and you look at the net revenue on average over the last three years, it was 4.5 percent, and so about 5 percent economic return, which is sort of the financing costs, or the opportunity costs, in this fishery, and so it makes sense.

DR. CROSSON: Back when you had a few pages before, on the annual vessel level economics, you had the net revenue from operations at $230, and so that's after subtracting all the of the opportunity costs and everything else out of there?

DR. LIESE: Yes, and so that was the 2016 results.

DR. CROSSON: So they're almost at the point of indifference for --

DR. LIESE: They are breaking even, right, and so all of the costs are accounted for. If you look at what it means exactly, the owner is paying himself $9,000, which is why he has a cash flow of almost $11,000, $10,700. That is what he has in his bank account, but, really, $9,000 of that should be going to him, in terms of his labor. If he had worked someone else's boat, he should have gotten that, and so that's his opportunity cost.

This is what you would expect above and beyond, and, in a competitive industry, there shouldn't be a huge net revenue from operations, and I will show you, in a second, a comparison to other fisheries where there might be a larger number, but it's not -- All the shrimp fisheries in the Gulf and the South Atlantic, they have showed this, and there is a positive cash flow, usually, in most years, but, when you take account of all the other costs that are implicit, it pretty much disappears, and they break even, ranging from a little bit minus to a little bit plus, but always sort of around the breakeven point.

DR. CROSSON: So they're not extracting significant rents from the fishery?

DR. LIESE: They are extracting no rents from the fishery. I still haven't published it, but it's official approval, but the mackerel fishery -- The tech memo has been reviewed, and it's pretty much done, and so the numbers won't change much, but they are still unofficial numbers at this point, and so, here, I put the 2014 to 2016 averages by different fisheries, and so the king mackerel numbers -- The thing to realize is it's about a $5 million fishery, the South Atlantic king mackerel fishery.

They take a lot of trips, 10,000 trips, by 650 vessels, but the percent of revenue among those vessels that is derived from king mackerel is only 24 percent, and most of what they are catching is snapper grouper on other trips, and so you see that 72 percent plus 24 percent gets close to what they are doing, and so, really, the king mackerel numbers on the South Atlantic incorporate the snapper grouper numbers, and so it is not surprising that the economics of the king mackerel fishery actually look very, very similar to the snapper grouper fishery and that the same thing happens in the Gulf of Mexico, where the king mackerel looks -- Then, again, if we put the gag fishery here in a column, it would, again, look very similar to the overall snapper grouper, which is why I'm saying that really, for most applications, when you want economic data, using the overall what I always all the mother SOI, the snapper grouper, is going to be good enough.

The king mackerel numbers, it's not surprising, because these annual economic numbers really reflect to 76 percent non-king mackerel, and so those 76 percent are -- Probably most of it is snapper grouper, and so the economics are similar, and you can see that the king mackerel fishery on the South Atlantic also, on average for the last three years, had a net revenue from operations of about 2 percent over revenue.

If you look at the Gulf reef fish fishery, you get a very different picture. I mean, it's quite a bit bigger fishery, with fifteen-million pounds instead of five-million pounds, and they take less trips, but longer trips, and it's actually the same number of vessels, and so it is way fewer vessels, in terms of what each vessel lands, and they are more specialized, and 93 percent is coming from reef fish, and, when you look at the economics of it, you very quickly realize that they have a net revenue from operations of 34 percent, and so, basically, of the $61 million they generate, about $21 million of that is what we economists would call rent or procured profit. Of all the fisheries I have ever looked to, this is the only one that ever has had systematically positive numbers, and that is probably because it's a catch share fishery with that IFQ since 2006 and 2011. I think that's all I've got.

DR. CROSSON: That was quite a bit. Are there comments or questions from the panel?

DR. WHITEHEAD: This is great work, and it should be very useful. I think that's an understatement.

DR. YANDLE: Similarly, I think the potential this has, particularly now that, with the code written and the ability to take this information and getting it out and making it usable quickly and regularly, is really exciting and important. I am really happy to see that this has moved forward as it has.

DR. DUMAS: As someone that has done a lot of regional fisheries economic impact type work in North Carolina in the past, this is fantastic. This is a huge amount of work, and I think it will

be extremely helpful to have this information. In fact, North Carolina is looking at, in the next year or two, doing a comprehensive study of the economic impacts of commercial fisheries and the commercial seafood industry, and so this type of information will be very valuable, and thank you so much. This is great.

DR. LIESE: Thanks. That's good to hear, and maybe I should -- Jim Waters had sent some sort of questions, and I can -- One of the questions was how will this be available, this data, and so my goal is to have these standardized tech memos coming out on an annual basis without any interpretation, and I think most people around the table here can look at the methodology section and figure it out, or, otherwise, just give me a call, if there is questions. Then nothing of this data is confidential, and so the raw econ data obviously is, and so there is always a lot of hoops to jump through if you want that data and it's not always possible, and so that was also part of the idea that these are not the final results, and so there's a lot of different things that you can do with this data.

You can use those economic percentages and apply them to other subsets of revenue, because probably that's the share -- You know, if you have say a state-level fishery, and you think like, well, their operations are fairly similar, fishing-wise, then you can use these economic percentages, in terms of what's going to fuel and labor, on those fisheries as well, on the revenue numbers, and estimate fuel used in other fisheries, but, to the extent that we have it in the coastal logbook data, I am always happy to entertain -- If someone wants to look at a subset of a fishery, or they basically want to look at a different type of SOI, or, for the management process, if king mackerel is being managed off the east coast of Florida, then we can try to develop that SOI within our program and kick out the diagnostic, and, if it makes sense, I can generate basically the standardized six-page result for that SOI. The idea was that this is a stepping stone and not the final product, but a stepping stone to make this data more useful to analysts everywhere and available.

DR. CROSSON: A question for other members of the panel. Do you think -- I am curious how this might be -- If the council were to see this sort of thing, how would they -- What would be a good way of presenting it? I'm actually especially interested in what any of the people that are in academics might think about this, because this is very technical, and I think that this panel is able to quickly digest this and recognize the significance of it.

This afternoon, Chris is going to be presenting it to the SSC, and that's also going to be -- He will change it a bit, I'm sure, because there is a number of non-economists on the SSC, people that don't have this background, but is there any particular way that you guys think that it might be able to be presented in a way? I mean, how would you go about it, if you were going to present it to a non-technical audience?

DR. WHITEHEAD: You mean taking Christopher's presentation and boiling it down into something simpler?

DR. CROSSON: Yes.

DR. WHITEHEAD: Well, the baseline numbers are things that are -- They're the sort of numbers that you would present in an intro economics course, and that's a non-technical audience, and so looking at the means, the averages, for revenues and costs and different kinds of costs and the opportunity costs of the captain's time is a striking number in this one. I think those summaries would be pretty easy to present to a non-technical audience.

DR. YANDLE: I would agree with John. I do not think this is overwhelmingly technical, and I think actually simplifying it down runs the risk of losing some of the expertise and nuance and technical skill that goes into creating this, and I think that is something that, often in our efforts to make things more easily understandable, some of the expertise gets lost, and I think, particularly thinking about the SSC, and for that matter the council, these are intelligent people who are used to seeing and working with numbers, and there is nothing here, other than maybe a brief pause to explain particular terms, but there is nothing here that should be that challenging to them, and I think we've actually -- There is the potential for doing a disservice to this work if you simplify it down too much.

DR. WHITEHEAD: I think, in general, there is a lot of numbers in this report and presentation, which the SEP loves and the SSC loves, but my guess is the council doesn't love, and so, for instance, on the slide with the time series and the average, if you just present the average, then fewer numbers are more easy to digest, but, like Tracy said, those folks understand what those numbers are and the averages.

DR. DUMAS: When you think of fishermen as a potential audience, when you present numbers that are averages, I think it's going to be very important to emphasize that those numbers are averages, and they don't represent any particular fishermen's boat or any particular fisherman's results or costs, and they're averages, and they could be averaging in some high-liners and other people, and I know, in some places, you bring down the values by I think -- I can't remember your terms, but sort of frequent participants and less-frequent participants and boats that rarely participated, but I think, when fishermen look at these numbers, they're going to think, oh, this doesn't reflect my boat, and I think it's important just to emphasize that we're trying to capture averages.

Also, pointing out the difference between the means and the medians is going to be important when talking to fishermen too, as an audience and presenting these results, and sort of lingering over that. The mean is an average, and it doesn't represent any particular person's boat, and also talking about the difference between mean and median and what that means. Thanks.

DR. LIESE: Thanks for that. I have that in the shrimp report, and I'm not actually sure we have it in this one, but the disclaimer should be in there.

DR. CROSSON: A member of the SSC, and go ahead, Fred.

DR. SERCHUK: Just a question, Mr. Chairman. I'm Fred Serchuk from the SSC, and I'm just an audience member at this point in time, but, one, I noticed in the table of catches at the very beginning that there are a few species that are landed by less than three vessels, or three trips, and I'm just wondering -- Does that also qualify for public consumption under the confidentiality rules?

For example, and I know these are miniscule, but it's a legal issue. You have misty grouper, two trips and two vessels, and you have coney with two trips and one vessel, and I'm just wondering -- You might check that out, because I know that typically there is this rule about three vessels and confidentiality, and it really means very little, but, if it's possible, you could say less than four trips, or less than so on and so forth, and I just want to raise that question.

DR. LIESE: Thank you. Point taken. I didn't even consider that here, but, yes, people could infer the price. Obviously, it's an estimated price, and there's no location data, but, again, yes.

DR. SERCHUK: Sorry to bring up a very trivial point, but it's a legal point, and I just don't want to get tripped up by that. The other issue that I thought about is, although you have analyzed it by fishery, and done a great job, and I echo all the comments that have been raised around the table, I am wondering whether a number of vessels participate in more than one fishery.

In some cases, I know, in the winter, for example, if you're in Maine, you fish one fishery in one season and then go to another fishery, and you could be fishing for shrimp, and you could be fishing groundfish and so on and so forth, and so, if one was to look at the economics of the South Atlantic fleets, in the aggregate, looking at it fishery-by-fishery would not tell you the whole story, because vessels could participate in more than one fishery during the year, and I wonder whether you thought about that to get at a broader picture of how overall vessels are doing, because a vessel may not be -- A vessel's performance in snapper grouper, where it may be 75 percent of the thing, may not reflect the vessel dynamics of vessels that fish in more than one fishery, and so that might be a question that people would ask of, well, what does the average vessel do, and a fishery-by-fishery examination may or may not be able to answer that question. It's just a thought. Thank you.

DR. LIESE: That is the big difference between -- The nice thing about having the trip summary data is that we have all this information from the logbook, because there's a lot of logbook, but it's only for those fisheries that have the logbook, and so this is not going to be -- If a vessel does blue crab, it's not here, or, if it does shrimp, it's not here, but, when we go to the annual vessel level, this data here, and there is a disconnect.

This is still coming from the logbook, but, when we go to the economics, this is our survey that goes to the vessel owner himself, and he responds, and so, when they report revenue to us, that's not asking about any particular fishery. It's seafood revenue, and so this should include everything, including Northeast and this is -- We tell them again and again that this is holistic at the vessel level, and so lots of these people are doing for-hire fishing, and they report that to us, and some people report other stuff.

We don't ask them for a number. It's not that many that do other stuff, and, if they do a lot of other stuff, we will eliminate that vessel from the economics, and so we have that question on the survey, but these are the -- Under total revenue in commercial fishing, $57,000, that should be all of their commercial fishing, and, for these ninety-four vessels, we can look at what they have in the logbook, and they probably have something like $45,000 in the logbook, and so, presumably, $12,000, on average, is coming from fisheries that are not the coastal logbook system, and so that's why I actually personally like the annual vessel level economics, which is self-reported by the fishermen, because it is holistic.

The problem always is it's a small sample size, and so this is forty-nine vessels reported in 2016, and so, when you drill that down to smaller, like the gag fishery, you're at fifty vessels. If you're going to another species, you're going to be at even less, but that's also my point, is like I think these economics are holistic, and probably, for most applications, I would always use these numbers, because they are so holistic and self-reported and consistent with each other.

DR. SERCHUK: Thank you, and I would ask one question about this table. I see the median, in a number of cases, is zero, and that's simply a reflection of most vessels have no insurance, let's say the cost?

DR. LIESE: Most vessels don't do for-hire fishing. There is just a couple of people who for-hire fish, and so they bring the averages up, and so it's a very asymmetric, but, to a certain degree, that's all this fisheries data. Even on catch and so on, it's always 20 percent do 80 percent of the catch, and so it's always -- The medians, almost across the board, are much lower than the means.

DR. CROSSON: Any other comments?

MR. HADLEY: Really quickly, I think this is a great report, and it sounds like the SEP looks on it favorably, but the SSC will be asked if they agree with the SEP's opinion, and one of them being regarding the best scientific information available. Another thing is does the SEP agree with that, and, also, the council economists and Regional Office economists were pretty excited to have this information, particularly when we're looking at the economic effects on the commercial sector. We tend to be stuck in gross revenue, and that's as far as we can go, and so we would like to use this report to apply some of those net revenue estimates to get at some better numbers than just working in gross revenue, and so, if the SEP has any comments on that, or do they agree with that opinion that that's okay to apply that? We could just use a little bit of discussion on that.

DR. WHITEHEAD: Yes, this is the best scientific available information.

DR. YANDLE: Agreed.

DR. WHITEHEAD: Usually it's when the information is not so good, right? In this case, this is the best, I imagine, that you could get with almost unlimited resources.

DR. YANDLE: It represents a significant jump forward over what has been used previously, and so it absolutely meets that bar.

DR. WHITEHEAD: This is far better than using gross revenue.

DR. SWEENEY-TOOKES: I think this is unanimous among the committee members here.

DR. CROSSON: Thanks, Chris. So the fishery performance reports is next?

MS. WIEGAND: Yes.

DR. CROSSON: That is you?

MS. WIEGAND: It's me.

DR. CROSSON: Okay.

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MS. WIEGAND: All right, and so we wanted to take a little bit of time to talk to you guys about these fishery performance reports. I know that they've been brought up in past meetings, but we've never really taken the time to go over the full process and the questions we've been posing to the advisory panels and how we sort of end up with these performance reports, and so I'm just going to briefly go over the process, and I'm sure that you guys spent a lot of time last night just mulling this over and over and over again in your sleep, but the purpose of doing these is really to get some qualitative information from our advisory panel members, given that they're out on the water day in and day out, and they are likely to be noticing changes before they are perhaps picked up by the data, and it's also likely that they will be able to explain some anomalies that we see in the data.

The purpose has been to use them to complement stock assessment reports and developing stock status recommendations, but, also, to inform council management decisions, and so the first step in this process is to put together a background document that we provide to the advisory panel, and this background document will include the general biology, stock status, management history, commercial and recreational statistics, as well as economic performance, and we originally started doing these as long PDF documents, and, as you can see -- Like this one for king mackerel is fifteen pages long, and, while it provides some valuable information, that is a lot for advisory panel members to go through, and so, recently, we have moved on to what is called a Shiny app, which is quite a bit more interactive.

It allows you to select the species -- In this case, golden tilefish was the fishery performance report, and then select which data you want to display, and so say yearly landings for the commercial fishery, and it pops up the graph for you, and so it's the same information, but it's just a little less wordy and a bit more interactive, and so hopefully a bit more engaging, and I will talk a bit more about what we're thinking about doing with the Shiny app, in terms of fishery performance reports as a whole, in a second. That's the first step.

The second step is to put together discussion questions that we'll then pose to the AP during the meeting, and these questions have to do with landing and discard trends over the last five years, current management measure performance, environmental conditions and ecology, social and economic influences, and then any other concerns they might have or data gaps that they think there are in the fishery.

These are the questions that we've got specifically to address social and economic aspects of the fishery, and so looking at how commercial price and demand has changed, how demand for charter and headboat trips have changed, asking them explicitly what communities are dependent on the fishery, how changes in infrastructure, like docks and marinas and fish houses, are affecting their fishing opportunities, and then how the communities have been adapting to changes in the fishery, and so, during the actual advisory panel meeting, we'll briefly go over that background document and then pose these questions one-by-one to the advisory panel and allow them to discuss it.

Afterwards, we put together these fishery performance reports, and these are usually prepared from notes that we've taken during the meeting as well as going back through the meeting minutes, to

make sure we're properly capturing the discussion, and you end up with, again, sort of a wordy report that looks like this, that summarizes each topic that was discussed based on geographic area.

That is just the general process we're going through, and there are some concerns, and we've got some questions for you to hopefully help us address some of those concerns, and so, unless anyone has any questions about the general fishery performance report process, I can sort of go through these one-by-one and explain our concerns and then get some input from the panel.

Sort of our first concern is these are incredibly time consuming to conduct. Gathering all of the background information and putting together the report takes a lot of time, and it's not just one tech staff member. There is a number of people that have to sort of collaborate on this to get it done, and so it can be challenging to balance other council priorities, and so we were wondering if the panel had any recommendations on how we could consider streamlining this process, to make it a bit more effective and efficient, particularly considering, in the snapper grouper fishery, there are a huge number of species in that fishery management plan.

For Dolphin Wahoo, or for CMP, where we've got two or three species, it's easy to sort of get them all done and then update, but, with Snapper Grouper, it's a pretty big undertaking to think about addressing all of the species in that fishery management unit.

DR. YANDLE: Just a general sort of a broad comment, without getting into the wording of the questions and all this, this is one of the challenges of gathering good qualitative information. It takes time, and it takes effort, but it's important, because it helps you to get at the why and how and not just the numbers, and it's really important for getting some documentation to get into some of the nuanced understandings of what's going on and documenting it when it's happening for later on, when something happens in the fishery, so we can look back and we have, because it was recorded contemporaneously --

Having that contemporaneous information relatively unbiased of what was going on in a fishery and then having that sort of as almost historical record to understand, looking back, what was going on is very, very important. There may be ways to streamline the process and have a look at the questions, like you suggested, but I at least would say that we do need to recognize that this is important and needs more information that we need to gather.

DR. SWEENEY-TOOKES: I would definitely like to second that, but then I also have a clarifying question. When you say that the FPRs in general are time consuming, are you referring to the entire process of compiling that background document on each species and then getting that to the panel and then conducting the meetings and then writing the report, or are you talking about the gathering of the qualitative data during that meeting?

MS. WIEGAND: All of the above. The background document is -- That involves multiple staff members taking time to put together the information. The discussion during the AP meetings also does take a significant amount of time, and they have other council issues that they need to discuss, and then, of course, getting the meeting minutes and putting together the final report also takes a bit of doing, and so the whole process, in general, is fairly time consuming.

If no one has any more comments on that, we can talk about the discussion questions a little bit. We would like to make sure that the wording is appropriate and that we're not asking questions

that are too ambiguous and the order of questions is appropriate or if there are any sort of other social or economic concerns that we should be getting at that we're not with the current questions.

DR. SWEENEY-TOOKES: Continuing on your first question, I was thinking, as we moved on, and so I hope that's okay if I rewind for just a second. When you talk about preparing these reports, my first thought is that hopefully it becomes a cumulative process, that, as you first compile the greater amberjack report, and there's a lot of historical research that needs to be done, but then, when this is repeated again in a few years, shouldn't that process be much easier for you all?

MS. WIEGAND: Yes. Once we've got the initial fishery performance report done and compiled, all the information, so it's easier to update from there.

DR. SWEENEY-TOOKES: So there will be diminished effort on that part of it? It will be time consuming to collect the data within the groups. There is just no way around that. Qualitative data, and collecting research data with human subjects, just takes a long time. I assume that it's being transcribed, so that you can simply pull the data out of those meetings as well. Is there a way to not actually have those meetings about a specific species, but rather a group of species, or is this mandated to do it in this manner?

MS. WIEGAND: No, it's certainly not mandated to do it species-by-species, and, with snapper grouper, we have had discussions among staff about some groupings that might be easier to do, and it's sort of pros and cons. Grouping them makes it easier to get the fishery performance report done and put together, and it's also possible that you lose some nuance by grouping the species, and so pros and cons.

MS. BROUWER: Just a question for the panel. One thing that we did a couple of times, and we haven't decided whether it worked or not, was to send the discussion questions out to the AP prior to the meeting and kind of -- Not really request that they answer them, but that they look at them and that they think about them, so that, when we get to the meeting, it's a lot easier.

Of course, you've got folks that are very diligent, and they even sent the answers to these questions ahead of time, which was great, but I wonder if there is pros or cons to that approach. Is it better not to send the questions out ahead of time, to avoid some sort of -- I mean, I don't know. I'm not a social scientist, and so that's why I'm asking you all, or do it like we've been doing it lately, which is just posing questions to the AP as we are talking about the fisheries.

DR. SWEENEY-TOOKES: That's a great question, and there's pros and cons to doing it both ways. If you send out the questions ahead of time, people have time to formulate their answers, which is both good and bad, depending on the question that you're asking, and you're going to eliminate some of that social desirability that you raised in a later question that you're concerned about. If people have had time to think about it independently and sort of draft a response, even if it's just yes or no, they are more likely to come in and speak their own mind.

You do sort of lose a little bit of that element of surprise, where people have to think on the spot and be earnest and frank, and that may temper their responses, which is sometimes a good thing and sometimes a bad thing, but you're going to run into that social desirability and that desire to either argue with this person because you just disagree with them, no matter what they have said, or always agree with this person because you dock there and you don't want to speak out against

them, and you're going to run into that anytime you do a group interview situation, which is, realistically, what you are constrained to do on these.

DR. YANDLE: I agree. I can see this going either way, but the big thing, for me, is you essentially have access to an expert focus group at your disposal, and we have worked so hard to get so that we're systematically gathering their information, and I would just really like to see that continue, because I think, particularly once you start getting the longitudinal data, it's going to be really worthwhile. I am probably less concerned about if you get the questions ahead of time or not to them. I would say just whichever way you end up getting more information from them, and I'm probably less concerned about that, while agreeing with Jen that there is pros and cons to each approach.

DR. SWEENEY-TOOKES: Whichever method makes it less difficult for you all as staff, and therefore more likely to continue doing them, seems like the correct answer here.

MS. WIEGAND: Continuing along the lines of questions, are the social and economic questions we have here appropriate? My big concern is, is there anything missing that we really ought to be asking these APs about that we've neglected?

DR. SWEENEY-TOOKES: I often get some of my best data from simply asking something very open, like tell me what's new in amberjack since 2009, and what should I know, before your start narrowing in those on specific things that you want to inquire about.

DR. CROSSON: One of the things, and maybe it's up there and I don't see it, but I'm always curious -- These things are designed to help you in the future, right, and so, if you notice a big dip or a big jump in landings, the first question that pops into my head is that it's not usually biological, and it's usually is there something else economic going on, and so is there a question in there that gets to what else was happening in the fishery that might have been -- I mean, was something else more attractive, and I guess that's the big question. Did you suddenly go out fishing for tuna, even though you had this limited-access permit or something like that?

DR. YANDLE: I was just going to say memories of wreckfish.

DR. CROSSON: I was absolutely thinking of wreckfish. It was like why did the wreckfish landings drop, and it was like because tuna -- We can show, pretty easily now, looking at it, it was because all the tuna and other fisheries were more attractive, suddenly.

DR. YANDLE: I think one thing that would be totally fair game for this though is -- I'm not sure if this would be more work or less work for you guys, but, when you -- You know, you have that great thing that you're using to present the information for them. If there is a suddenly dip, or a sudden increase, in catch or revenue or whatever, just say, hey, we noticed this, and what do you think is behind this, and, again, neutrally phrased, you will probably get back that, oh, we can't find the fish this year, or, well, everybody I know is now fishing blah, blah, blah instead, because of whatever. As long as you neutrally word it, there's not a problem with it.

DR. CROSSON: I do generally like really open-ended questions and trying to get -- To me, it's just like what was this past season like for this fishery, and, a lot of times, the answers you get are like we couldn't get out of the inlets in April, because the winds were blowing non-stop for four

weeks, and, by the time that they did, then this other fishery was open, and so we went into that instead, and that's the kind of stuff you want to know, and not just economically, but it's just, when a stock assessment comes along, years later, and there's those big drops -- When it ends up happening in the SEDAR process, because I've seen it happen repeatedly, it's that suddenly everybody tries to remember what happened, when you're talking to the fishermen that were active. They can tell you something, but the reliability of that is low.

DR. YANDLE: Building on that, also, the assumption, which is a reasonable precautionary principle assumption, is that, when you only have the fishery-dependent data, if there is that drop in catch, there is probably a drop in the stock, and then we have this historic data that we can go back to and say, well, they reported that the reason they weren't doing it was winds or whatever, and then we have that, and you can use that to take account of that when you're doing a stock assessment, and that's the information that's been lacking and has burned us scientifically many times.

DR. CROSSON: The temptation from the fisheries communities is going to be to -- When you're asked that question, they will say, oh, no, that was weather or something else, and that's why we didn't go fishing a particular year, because, if it's actually on the table right now, and it's SEDAR and you're there and presenting, that's kind of the preferred answer they're going to give. It's not going to be because there is something biologically going on in the stock, and so it's just there's all kinds of problems, and so hopefully we can get around that.

DR. YANDLE: But by getting it contemporaneously, you are much more likely, particularly when you're approaching them as you're the experts here and what's going on with this, and I think you're much more likely to get a candid response.

MS. WIEGAND: Speaking of getting accurate responses and sort of working with these guys, we've had a lot of cases where one or two advisory panel members will really dominate the conversation, be it that this is their fishery and that's what they focus on, and they know a lot about it or what have you, and so there's concern that staff may need to help facilitate a little bit, to make sure that we're not getting too narrow of a picture of the fishery, and there is also some concerns about the social desirability effect, given the public nature of these meetings and the fact that they know this information goes to staff and then to the council, and so we would like to encourage active and honest participation from everyone, and if the panel has any recommendations on how staff can help facilitate the discussions.

DR. CROSSON: This group has probably run a lot of focus groups, and so how do you handle it when somebody keeps dominating the conversation, because this happens in almost every focus group that I have ever run. I am usually pretty good about trying to assert, after a while, that, hey, wait a second, and Fred has said a lot here, but do you guys think this is the case or what else, and then you can kind of turn and start looking at other folks, but I think that's going to be harder in a public setting, because I'm used to doing it usually in a focus group setting or in a small area, where there's not a lot of other people watching, and so I don't know.

DR. SWEENEY-TOOKES: This is the problem with focus groups. You can work the dynamics of the room, and you can certainly say, at the beginning, that I'm going to be asking each of you to comment on each of these questions, and so please don't be surprised when I turn and say, Scott, we haven't heard yet from you on Question Number 4. You can establish it at the onset, or you

can enlist their help in taming the outspoken ones, and we've heard a lot from Bob. Now, Jim, can you give me some ideas about what you agree with about what Bob said and what you didn't, and this is really where interviews become much easier than focus groups for gathering real data.

DR. YANDLE: Also, just going back to old-school classroom dynamics. I would argue that this could be a potential reason for giving them the questions ahead of time. That way, the people who are more reflective are maybe not as -- It not may be in their nature to come out and be one of the first ones to speak, and they have the time to figure out and think through what they want to say ahead of time, and they will probably be more prepared and more willing to speak.

DR. CROSSON: One way of dealing with it might be to point out -- I mean, these guys are geographically dispersed, and so, if Joe keeps dominating the conversation, you can say, yes, I understand that Joe has pointed out that that was the case in Florida, but was that the case up in the Carolinas that year? Is that the same thing that you guys saw over there, because then you're telling me that, okay, he's given his information, and it's of value, but, obviously, it's a regional thing, and so we need to get a little bit broader idea of what's going on in the region.

DR. YANDLE: Doing that would also basically be affirming the Florida guys' expertise, but also saying, but all you other guys also have expertise as well, and we need that as well, and I think the idea of basing that on geography is a really good tactic.

MS. WIEGAND: All right. Then, sort of along those same lines, as staff, we put together these reports, and we do it based on the meeting minutes, but we would like to make sure that our own biases or sort of expectations of the fishery aren't getting worked into these fishery performance reports, and, again, we would like to make sure that fishermen aren't telling us what they think we want to hear, as staff, and so this gets at some of what you guys already answered, but if you have any recommendations on a more streamlined process, perhaps, to put together these performance reports, and we've just been summarizing directly from meeting minutes, and, recently, we have started pulling direct quotes out of them, to make sure that we're painting a full picture of what these guys are saying and not introducing any personal bias.

DR. YANDLE: I think the direct quotes are probably your best chance of doing that, and so, the more complete they are, the more you're forcing yourself to capture what they are saying rather than your interpretation of it. It's saving extra time, and that would be an added bonus for you.

DR. SWEENEY-TOOKES: Are you using any qualitative data software or coding them, or is that just way further than you're able to get into this?

MS. WIEGAND: Not right now. In the future, I would like to be able to use these performance reports and the minutes to do some of that for the social analysis in amendments, but that is incredibly time consuming, and so it's not the process we've been using right now to put the fishery performance reports together.

DR. SWEENEY-TOOKES: Which makes perfect sense, but it may be the gold standard that we're all aspiring to someday.

DR. SERCHUK: The Mid-Atlantic Council, as you may know, has been using these fishery performance evaluations for a number of years. Typically, the reports themselves are provided to

the SSC, typically at the time when the SSC is commenting on an assessment and is in the process of setting ABCs. It's to provide the SSC with information that would not otherwise be available in the assessment report, and I'm probably preaching to the choir now, and you probably know that.

The reports are generally very brief, maybe two or three pages long, and they highlight a few issues, and so it's important, I think, to separate out that sort of issue that the SSC is dealing with rather than the whole litany of concerns that you want to get feedback from the industry on a variety of issues, and so it's important to me to make the process as workable as possible, and it seems to me that some of the questions that are being raised here -- They're all valid, first of all, but, second of all, they may not all be useful for the SSC at the meeting in which they're considering it, and so I think you have to --

I think it's great to go out to as many people as possible, in terms of getting feedback, but recognizing that not all that information will be of use to the SSC in their ABC process. Many of them would be trying to make the data better or trying to get some other issues that are not first and foremost on the SSC's responsibility, and I think you have to find a balance here, or you have to make that known to the advisory panelists, that we're seeking all of this information, and we're going to distill it down into an advisory panel report, but, for the information that's going to be provided to the SSC to help them in their ABC setting process, not all of this information will be provided, because it's not been collected particularly for that purpose.

I don't know where you strike that balance, but I think that message should be clear to the people that are providing feedback, so they understand a bit more how the process will work, and does that sound reasonable?

MS. WIEGAND: I guess it leads me to a question that I would pose to this panel. I believe this was before my time, but I believe these started based on the Mid-Atlantic fishery performance reports that they do, with the intent of using them as part of the stock assessment process, but, as staff, we sort of talked a lot about where they're most useful, and they are certainly useful in sort of explaining data anomalies and getting some background on the fisheries for stock assessments, but there was also thought that these would be helpful for council members, as they are making management decisions, and including information in these reports that would be beneficial to them as well as being beneficial to us, particularly when writing the social effects sections of amendments. I guess I would ask panel members where they feel this information is really most useful, whether it be sort of a mix of both or whether we should start tailoring these fishery performance reports to management or stock assessments or what have you.

DR. COLLIER: I do want to point out that we're going to do these fishery performance reports for several species and not just the assessed species, and so it can be used in other aspects of management beyond just the stock assessment process.

DR. SWEENEY-TOOKES: I think there is always a danger when you're gathering open-ended qualitative data like this that, if you go in with a specific mindset of I only want to collect what's useful to the SSC, or I only want to collect what's useful for this particular stock assessment, that we often then influence the kinds of data that we gather, and so, while I understand that we want to make sure that our data is relevant, I would argue that, oftentimes, qualitative data, we may not be asking the right questions if we try to narrow it in before we even start getting those answers.

DR. CROSSON: I'm not sure how to answer, other than -- I mean, the reason that I would want this information is to document things that happened that are not immediately obvious to me, given the data that I have, or they might be obvious, but they're not answerable, given the data I have, and so what data do I have? I have catch records, and I have some information on market prices, and that's it, and so that's always the question.

I don't want to gather information just for the purpose of documenting the history of the fishery, although that's interesting, but I recognize that the priority, for me, is going to be trying to figure out what else is going on, and it's usually weather related or some other kind of -- A hurricane or flooding or something like that, some kind of ecological or meteorological thing happened, or there was something that happened with the markets for the species, or the market for other species that these people also might be involved with, and those are the highest priority. Everything else is secondary after that.

That's the thing. Any time you're running any kind of focus group, there is the questions that you've really got to make sure that they're answering, and then there's the other stuff after that, and that's going to be based off of the time and the willingness of the panel to answer these things, and so it's a little easier, when you're running a focus group, if you're paying people to be there and answer questions.

MS. WIEGAND: Thank you. That's helpful input for us as we guide how we're putting together these fishery performance reports. We also wanted to talk to you guys a little bit about how we should be presenting this information, to make sure it's both engaging and helpful for SSC members and council members looking at it, and so Chip Collier has put together a Shiny app that contains all fishery performance report information.

It's based on what AP is meeting, and so the Snapper Grouper AP is meeting later, and they'll be going over blueline tilefish, and it contains all of the data that I talked about earlier, all of that background information, and it now also contains data for the past reports that were done, and so they're all listed here. You select your species, and it pops up the data, and we're sticking in fishery performance reports, and so it's got the PDF documents that are put together as well as the questions that were asked, and so, for observations on stock abundance, this was the question that was asked to sort of elicit these responses.

We're hoping this website is now sort of like a catch-all for fishery performance reports, everything for anyone who is interested in looking at the data that was provided to AP members or the resulting fishery performance reports, and so if you have any recommendations on how this website is put together or ways to make sure the fishery performance reports are engaging and useful, for those that are going to be using them.

DR. CROSSON: I am looking at these right now, but the fishery performance report is just a PDF of what happened, and it's not coded or any information? I understand the limitations of staff time, and that's the biggest thing. If you had the time, or you had the labor, you would want to be able to code it so that it's getting at some of the questions that we brought up.

DR. YANDLE: Again, I think where we're going to get the value out of the fishery performance reports is later on, when we can then -- This will probably end up being more staff time down the

road. Then, when you're going into a SEDAR, or you're going into an assessment, and you're then able to go back to those fishery performance reports and say this is what we found that's related to these data points, and so you're not asking the people who are in those meetings to plow through half-a-dozen of these reports. You then will be able to go back and extract and say this is the qualitative explanation we have for these different data oddities. Now, go take that into account when you're doing your analysis.

MS. WIEGAND: I guess that sort of leads me into a -- Not to jump away from how we're presenting this data, but one of the other questions we have is what sort of timeline should be used for completing fishery performance reports? Right now, there is no standard timeline, and they are typically done before a stock assessment. We will know a stock assessment is coming up, and we will put them on the advisory panel's agenda, and so, every four years, depending on how the stock assessment schedule goes, would be about how often they might come back up.

There are some concerns. One, we worry a little bit about AP fatigue. The questions that are asked are very, very similar. Occasionally, we'll add additional questions, if we've been looking at the data and notice something that we want them to comment on specifically, but, otherwise, the questions are the same, and they usually do two per meeting, and so we worry that they're going to get a little fatigued in going through these.

DR. YANDLE: The argument against doing it right ahead of a stock assessment is they're going to be aware of that, and that's going to color, potentially, some of the information you get, whereas, if you're doing it at the time -- You know, hey, this data just came in, and we noticed this drop, and what's going on with this, and it's that contemporaneous reporting is what is going to make it valuable and not asking them right ahead of a stock assessment.

MS. WIEGAND: So you would see them being done just as needed, just as we notice anomalies or something unclear to us happening in the data, or -- I'm thinking specifically for some of our smaller FMPs. With snapper grouper and the number of species, it's a little different, but, for like dolphin and wahoo and CMP, we could feasibly update these on a fairly regular basis, because it's such a small number of species.

DR. YANDLE: Ideally, to me, you would have regular updates at relatively tight time intervals, while things are still fresh in people's minds. Then the question becomes what's the reality of what you're looking at, in terms of your time and resources, and that I am less able to answer, but your academic ideal answer would be regular basis, as close as possible.

MS. WIEGAND: I guess, just briefly going back to how we're presenting this data, given staff time and the limited amount of time that we would have to do any sort of coding for this, is the way we're presenting fishery performance reports now sufficient for their current uses?

DR. SWEENEY-TOOKES: I was just going to say that it's actually quite a lot of fun to play with. I was enjoying randomly selecting species and looking at different data about them, and so I like it so far.

DR. CROSSON: We can probably put it on the record that the SEP enjoys online data tools.

MS. WIEGAND: Then I guess, sort of last, but not least, and, if we're going to think about not just doing these before stock assessments, that already gets at that, but there are a number of species that just aren't assessed at all and have generally lower levels of landings than the assessed species. What sort of priorities should be placed on those species for doing fishery performance reports, given that there are lower levels of landings, but, given that they are unassessed, the fishery performance reports could provide some valuable information that we don't have through other data streams.

DR. CROSSON: Kari MacLauchlin did those groupings, right, for like the snapper grouper, because -- Especially this is an issue for snapper grouper, and so she had done those groupings, where there were like four or five kind of groupings of the way that people went, and there were certain trips where these three or four species or five species were caught together at this time of year, and so I would look to that, first.

I mean, the council had that analysis done, and I think it was really useful to look at, and I liked it a lot, the clustering analysis that she has completed, and so I would look to those and use those as my guide in the snapper grouper fisheries, because that is really what you're trying to aim at, is these trip level changes.

MS. WIEGAND: That's a fantastic thought that we had not thought of when grouping these species. That's very helpful. That was all that I had for fishery performance reports, unless anyone has anything else that they would like to comment on.

DR. CROSSON: No, thank you, and that was great. All right. It's 10:10, and so let's take a ten-minute break, roughly, and we will reconvene at 10:20.

(Whereupon, a recess was taken.)

DR. CROSSON: We are restarting the meeting. Before we move to the next agenda item, there is one thing that I wanted to make sure that we probably all have consensus on, but I need to double-check, so that it's on the record. In side-discussions during the break, it was noted that the SSC would probably find the presentation that was just done on fishery performance reports really vital, since what we were trying to do was figure out what a stock assessment scientist might want, and none of us are that, and so it would be good --

Since the SSC is one potential audience of those fishery performance reports, especially when setting an ABC recommendation, and that's the kind of information you need, and then the stock assessment and SEDAR process is the other, another appropriate place, and so the SSC would be a very good body to give feedback on what should be gathered, and so I don't think that's possible for us to have that on the agenda for the SSC meeting that starts this afternoon, but certainly by the next one. Now the last item that we have is MyFishCount, and so, Chip, you're going to be presenting again?

RECREATIONAL REPORTING AND MYFISHCOUNT SURVEY RESULTS

DR. COLLIER: Lucky for you, I'm not going to be presenting. Erin Spencer will be presenting, but I will just give you a little bit of background. Erin is going to be going over some information

that we gathered based on MyFishCount. MyFishCount is a recreational report app that the council staff has been working with the Angler Action Network in order to provide recreational reporting of snapper grouper species, and, notably, it's been used for the red snapper fishery, and what we're trying to do is just improve data that we have available for red snapper, and it's able to collect a variety of information, whether it's length of the fish, how you treat the fish when it's released, the depth that you're fishing, where you leave, what kind of dock you leave from, and so it collects a variety of information.

Then Erin and Kelsey Dick came to you guys last year and presented the draft survey, and you guys had a lot of great comments on that, and they incorporated the comments, and then, later on, they took the survey out to the public, and they did that twice. Erin is going to be going over the results and some of the methods that were used in the survey. Erin Spencer is completing her master's at the University of North Carolina at Chapel Hill, where she is working on mislabeling of seafood and electronic reporting. Then, in the fall, she's going to be attending Florida International University, working on her PhD. With that, Erin, if you want to take it over.

MS. SPENCER: Thank you, Chip. Hi, everyone. I am very excited to be sharing the results of this survey with you, and I apologize that I am not there in person. The revisions to my thesis are due this week, and so I am, unfortunately, stuck here in Chapel Hill, as I finish those, but I wanted to -- I will just cue Chip for changing the slides.

I actually found out about MyFishCount through Twitter. As I was scrolling through, I saw an announcement from SAFMC about this new electronic reporting platform, and it's an area that I was very interested in learning more about user experiences and demographics and perceptions of the app, and so I reached out to Kelsey, and we started from there.

This is a little bit of review, because you all listened to Kelsey talk about this last year, but, just as a reminder, the goal was to assess the use of the MyFishCount program by recreational snapper grouper fishers in the South Atlantic. The platform was originally a website, and then the app was launched, it was really targeting -- It was around the recreational red snapper season in the South Atlantic, but we were generally targeting snapper grouper fishermen at large.

We had three primary questions. First was how do anglers perceive the snapper grouper fishery in the South Atlantic, and I will also add to that that we were interested in some of the demographics of those who responded to the survey. The second is what are the attitudes, perceptions, and opinions of electronic recreational reporting that might influence angler behavior, and then what modifications or improvements can be made to the MyFishCount app and website to make people more likely to continue to use the platform?

To do this, we split this survey into two separate surveys. Each survey was about thirty questions long, and it included multiple-choice questions, short-answer questions, and matrices. I will also say that this was my first foray into social science research, and so I was very, very appreciative of all the feedback that you shared with us last year, and it was incredibly helpful, and as well as other folks within the SAFMC staff.

We also worked with Chelsey Crandall at the University of Florida, and she's doing multiple studies with motivation matrices across different regions and different reporting platforms to see comparisons between what motivates people to engage with these platforms. The surveys were

both emailed to the SAFMC listserv, which has about 3,500 members. Then, for the first survey, we sent a follow-up email reminding them to participate. They were also promoted on the SAFMC Facebook page and Twitter page. I, of course, advise towards Twitter. That's how I find out a lot of my news.

Just to kind of give you a sense, I used the Qualtrics platform from the University of North Carolina, and, if you click on that video, it should start to play. It's the PDF. That's okay. It's probably like many surveys you've seen before, and we had -- It was specifically ran through the University of North Carolina, to try to have a third-party branding, and this is just an example of some of the questions, and you could select more than one out of the matrices. I think one of the feedback items last year was to cut down on the number of matrices, and we did, and we shortened them, and I would encourage you -- The surveys are still live, and so, if you're interested in looking at them, I would encourage you to do so. I have also included, in the other document, our methodology, and here is two appendices that include those surveys, and so, if you're interested in a specific wording of the questions, those are there as well.

DR. COLLIER: Erin, if you hold on, I will switch over to the PowerPoint presentation.

MS. SPENCER: Perfect. Part of the design, and I'm not sure if Kelsey mentioned this last time, but we also did some pre-testing, and Kelsey had a few anglers that she sent the survey to, and I had a few colleagues at an ocean non-profit that I worked at that I shared it with, and they had some pretty good feedback about how to break up the questions in the survey.

This is important. One of the questions was asking how people engaged with the survey, and here's an example with the app, and here's an example that you can see. If you switch to the next slide, depending on how people engaged with the platform, they were sent on one of three different question trajectories.

First, everyone was asked a number of demographic questions, and that was standard across all participants, and then they were asked whether or not they had heard of MyFishCount prior to the survey or if they had not, and, if they hadn't, that's where the survey ended for them, and we were still able to get information about their demographics and their perceptions of the fishery as a whole.

If they had heard of MyFishCount, there were three different trajectories. There was questions for those who had heard of MyFishCount, but did not sign up, one for those who had signed up, but did not submit a trip, and then those who signed up and submitted a trip. That was to give us -- It was trying to see if there was differences in perceptions based on how people engaged with the platform and also to give a sense of just how many people had heard of it, but they hadn't engaged, or hadn't signed up.

Just to give you a sense, this is our first survey in March of 2018, and so this was fairly early on in the promotion of MyFishCount. About 115 out of over 200 had said that they were aware of MyFishCount, but they did not make an account, and then about fifty said that they had made an account and submitted a trip. Just to keep in mind as I go through some of the results that there were different sample sizes, and so depending on whether or not people had submitted a trip or created an account or had not done either.

Our first survey was sent out in March of 2018, and we had 285 respondents. The goal was 300, and so that was pretty good. This first survey, because, again, it was fairly early on in this process of promoting my MyFishCount, and we focused questions on general perceptions of electronic reporting, awareness of MyFishCount, and a willingness to try the platform. It was really targeting those who had used MyFishCount during the 2017 recreational red snapper season.

Our second survey was sent in November of that same year, and so following another season in 2018, and 122 respondents, and that was with the idea that more people had actually submitted trips, because they had more opportunities to do so. It focused more specifically on the user experience and the app and the website and then what motivates fishers to electronically report, and that actually includes the two matrices provided by Chelsey Crandall that she is using in a number of different surveys that are similar to this one. The goal of this was to really get some tangible feedback from the anglers, to see if there were specific changes in usability that could be linked to the app.

For the results, just an overview of some of the demographics. Over half of our respondents were from Florida in both surveys. Here, you can see we have broken it into northern Florida and southern Florida for north and south of Cape Canaveral. They averaged twenty-three-and-a-half years of fishing for snapper grouper, and so specifically targeting this species averaged twenty-three-and-a-half years. In both surveys, the average age of participants was 55.4 years old, and it's the exact same average age in both surveys.

We asked them how many recreational trips they took in the last calendar year and then how many specifically targeting snapper grouper recreational trips they took in the last calendar year as well, and so about 63 percent, and this is for recreational trips and not specifically snapper grouper, about 63 percent took at least one trip a month, and 22.8 percent took at least one trip per week, and so a pretty average group of anglers responded to this survey.

I am just going to go over a couple of the results of some of the questions that I thought were particularly interesting. As you can see, we have sixteen total questions, and so I'm not going to go through all of them. If, after this, you have specific questions about the responses to a question on the survey, please let me know, and I'm happy to look that up.

One of the questions that we were interested in is how often anglers start targeting snapper grouper and then switch to non-snapper grouper species within the same trip. About a quarter of respondents said that they often will do so. Almost 20 percent said that they always switch from targeting snapper grouper species to non-snapper grouper species.

This is not quite a surprise, as we were targeting snapper grouper anglers, but 56 percent of respondents said that snapper grouper species were among the most important. Almost 30 percent said that they were the most important target species in the South Atlantic. I am not sure what the 3 percent was that says that they weren't important, but, overall, people found snapper grouper species to be at least among the most important species.

We asked them how they thought that reporting should be structured for saltwater recreational fisheries, and almost 40 percent said that they should be mandatory for at least some, if not all, of the recreational fisheries in the South Atlantic. About a third said that they should be voluntary

for all, and then there's still 15 percent that are undecided as to how recreational reporting should be structured.

In the previous questions, I haven't included the exact wording of the entire question, just for clarity on the slide, but, for these next couple, the questions are in quotes, and it means that this is the exact wording that we used on the survey, and so, when we asked them about the current level of satisfaction with the current recreational monitoring program, MRIP, about 50 percent said they were very dissatisfied with the current method of recreational reporting. Only about 2 percent said that they were very satisfied, and about 8 percent said they were somewhat satisfied, and so this is actually the question where people were most unified in their responses, but anglers were overall dissatisfied with MRIP.

This one, I actually struggled with a little bit, and this is an example of just learning as we go and how to structure wording of different questions, and so this is in the first survey. We asked them to indicate their opinion of the catch estimates provided by MRIP for snapper grouper, and about 40 percent said that MRIP severely overestimates catch, and 24 percent said that it moderately overestimates catch, and only a few people said that it accurately estimates catch, and there was still about 12 percent that said that they didn't know.

Then, in the second survey, after some feedback, and we kept a couple of the same questions between the first and second survey, but, in this one, we changed the wording to see if we could make it more clear. In this one, we spelled out "MRIP", and it completely shifted the results. When asked how well MRIP estimates catch, about 25 percent said I don't know, as opposed to the previous group that only had about 12 percent that said I don't know, and then 8 percent said they were not familiar with MRIP, and so this is just a learning experience for me as well, the wording of questions and making sure that it is not necessarily an assumption that people know what MRIP is. There was a more diverse distribution of responses here, where still about 20 percent said that it severely overestimates catch, but then there was 16 percent that said that it moderately underestimates catch, and only a couple of people said that it accurately estimates catch.

Then, shifting to MyFishCount and other electronic reporting apps, when we asked how reliable is self-reported data, about 50 percent it was sometimes reliable. 12 percent said it was never reliable, but it seems like most people in the survey said that it's sometimes or almost always reliable, and so they're not necessarily convinced entirely that it is always a reliable representation of catch,

I know this is a little hard to read, and I apologize, but this is kind of a visualization of the answers to our matrix questions, and so, in these questions, we asked how much participants agreed or disagreed with certain statements, and so, the first question of electronically reporting information could be used to make informed management decisions, 70 percent of respondents said that they agree or strongly agree that electronically-reported information can be used to make decisions, which I think is a very strong number.

About 65 percent agreed or strongly agreed that electronically-reported information can be used to determine season length, and so it's pretty overwhelmingly positive responses there. Then most people -- There was kind of a more moderate distribution with whether or not it was easy, based on responses there, and then whether or not it takes a lot of time.

When we talk about motivations to report, we asked whether or not these statements would encourage anglers to report or discourage them from reporting, and the most strong response is from the first statement of "Other anglers believe electronic reporting will improve management", and about half of respondents said that it would encourage them or strongly encourage them. As you can see, for the most part, there is a lot of people who responded neutral to some of these questions, but one thing I want to pull to your attention is the third one down of "Fisheries managers expect me to electronically report", and 22 percent said this would actually discourage them from reporting, and so, from all the other options, very few people said that those options would discourage them, except for fisheries managers expecting them to. Essentially, if my friends are doing it, I'm onboard. If I'm told to do it, not so much. A bit of a scientific breakdown of that.

Specifically, as far as motivations to sign up for MyFishCount, I thought this one was really exciting. Almost 90 percent said that wanting to participate in fisheries management was somewhat important or very important in their motivation to sign up for MyFishCount. Again, I would just emphasize that this question was specifically for those who had already signed up.

80 percent said that they believe that MyFishCount will help their interests as an angler, and they think that that's somewhat important or very important as a motivator, and then MyFishCount is an effective way to keep track of the status of the snapper grouper fishery, about 75 percent said that that was an important motivator as well.

A couple of notes here, just talking about why people did sign up for MyFishCount. Over half of those who made an account, but did not submit a trip, said they didn't submit the trip because they didn't take a trip targeting snapper grouper. They had a free response answer here, and a couple of peopled cited bad weather in the 2017 recreational red snapper season as the reason they didn't submit the trip.

Of those who submitted a trip, almost 80 percent said they would use MyFishCount on future trips, meaning those who have already engaged with the platform have positive feelings and will use it again on future trips. Then this is actually representative of the previous slide, but 64 percent agreed or strongly agreed that MyFishCount data would provide accurate data about the snapper grouper fishery.

Just to give you -- There weren't enough answers here to actually do an analysis of responses, but I wanted to kind of give you a sense of some of the statements that people provide when they were asked what they liked most about MyFishCount. They feel like it's easy to use, and it gives a better representation of actual counts if all anglers use it. Someone said that they liked that the SAFMC is open to utilizing electronically-reported data. The ability to properly report effort, including scheduled trips not taken due to weather. This was something that came up during the 2017 season, and, here, someone specifically highlighted that as something they liked most.

Again, they thought that someone was listening when they had to cancel all their trips due to weather. Then this really speaks to the number of hours spent testing and modifying and re-testing this app and website, and people said that it was a pleasing interface and easy to use and a nicely-designed app, which, of course, really speaks to the effort put in by the SAFMC in designing this.

When asking what they didn't like, there was a couple of comments about not knowing how the data is going to be used, and so they don't know what data is kept anonymous and what is public record, and, again, not knowing how the government will use the data, and that came up a couple of time, the fact that the feds are involved. Some people said that it requests too much information, but then other people said that they liked that they were able to provide a lot of information, and so this could really come down to just personal preference.

My fellow anglers did not want to participate, and I was not allowed to give our total catch for the boat, and this could be a little bit of user confusion, and I believe that there is an option to submit boat catch. Then, again, a lot of people liked it, but there was also some people that didn't like it, that they were encouraged to report trips that they didn't take, and they don't want to be required a report when they didn't go fishing, and so, again, kind of different views from both sides of this.

Again, a couple of things. There are potential biases. The fact that this is a voluntary survey, are these demographics representative of people participating in MyFishCount, or are they representative of people willing to take a thirty-question survey through the SAFMC listserv? It's a self-selecting group. I was pretty pleased with the completion rate. Most people that did open the survey completed the entire survey, but there were some people who did skip some of the matrices questions, and then, also, again, wording bias.

One of the most valuable experiences in this whole thing was me writing questions and then sending it to Kelsey and sharing it with other folks and them saying, oh, you can't use this wording. Working with anglers, I didn't realize that there were so many words and phrases that I couldn't say, and so that has been a really positive working experience, and, again, also, I'm really appreciative of the feedback that you all gave us as we were designing these surveys.

A couple of final thoughts. Recreational snapper grouper anglers seem pretty optimistic about the use of electronic reporting as a way to improve data. Again, most people cited that they were dissatisfied with MRIP and cited wanting to participate in fisheries management as one of the primary motivations to sign up for the app.

It seems like they are more likely to participate if they see similar anglers participating. Also, most say that they learned about MyFishCount through the SAFMC email, and I will also say here that a few people in my final question, which was is there anything else you want to add, a few people really appreciated the summary reports from the MyFishCount data sent out by the SAFMC, and so I think now there have been two or three of these reports, of here is the data we have collected so far through MyFishCount, and multiple participants in this survey cited that as something that they really appreciate, and I am hopeful that we can get some of the data from this survey back to the fishing community as well, because that's definitely something that they cited too, is wanting to see the results and what other anglers thought. That is all I have for you, and so I'm really interested to hear your thoughts, and I'm happy to take any questions that you might have.

DR. CROSSON: Are there questions?

DR. WHITEHEAD: How do we interpret the question of how reliable is self-reported data like MyFishCount? Are the survey responders answering it about their own answers or other's answers?

MS. SPENCER: I would interpret that as other's answers. That's not a question that -- We didn't have a follow-up question on specifically what they meant by that, and that's actually a case where maybe some more specific wording in the question could have been helpful, but I personally would interpret that as, as a whole, as we're using this data to make decisions, how reliable is that data.

DR. WHITEHEAD: In terms of our discussion question, are there additional questions? I would suggest breaking that up into two questions. It would be interesting to know how reliable they think their own information is and then how reliable they think others information is.

MS. SPENCER: Yes, that would be a really interesting question, and one of the benefits of electronic reporting and being able to do it in real time is that hopefully, as soon as you take memory out of the equation, and you can log all of this information in real time, that that data would hopefully be reliable, at least your own data, but then I think something else that's interesting that we didn't ask about is when are people using this app? Are they using it on the boats, as they are on their way back, after a trip, and they're kind of logging it there? Are they logging it a couple of days later?

That's probably something that you could gain from actually looking at the metadata of the app, of when people are logging in and what dates they're giving for the trips, but I think that would be interesting, too. Is that part of why some people don't think it's really reliable? Is it because people are logging it a couple of days later and are not sure if that's accurate information?

DR. COLLIER: You're correct that we can pull that information on when they created the trip and when they reported landing, and we have all of the information about exactly when they were reporting and which fish was caught and different things like that, and so we can get into details for each of these questions.

DR. SERCHUK: One way that self-reported data are often assessed for their veracity is to compare the self-reported data on those trips in where there is a fisheries observer, and I know this is done up in the Northeast, and try to -- Obviously, it's a subset, but, if you have an observed trip with a fisheries observer onboard, and you can compare that either to the logbook that is submitted on that trip or any other way of doing it, you can have a basis for saying how similar or dissimilar the two reporting systems are, and I don't know whether that's feasible here, but I know that's been looked at in some detail in the Northeast.

MS. SPENCER: Do you know how they control for changes in angler behavior when an observer is onboard?

DR. SERCHUK: We know that there is an observer effect, and that is they often -- It's been reported that they do change their behavior, but that doesn't negate the fact that the information reported by the observer would be any different, or should be any different, from that reported by the vessel, either through an electronic reporting system. One action may change their behavior, but do they change what they report? That's something else.

DR. COLLIER: Just to follow-up on your suggestion, this is private recreational vessels, and so it's very difficult to put observers on those, because they don't have to meet all the requirements of a for-hire or a commercial vessel.

DR. SERCHUK: Still, I think the question is, is there some way to independently evaluate self-reported data, and I think that's an important question.

DR. CROSSON: This is just a question for Erin, if she's aware of it, or if anybody else knows, but Scott Baker from North Carolina Sea Grant, years ago, did something with Twitter, where people were doing private recreational reporting, and you could send it -- You can send a text to Twitter, and was that what it was? There was something that Scott was doing, and I remember it was really interesting, because fishermen would send a text to a specific Twitter account that Scott had set up, and then it would get recorded, and they had R pulling the data down or something, and do you remember that?

MS. SPENCER: Really? That's cool. No, I'm not familiar with that.

DR. COLLIER: I will send you his report. What Scott was doing was he was working at fishing tournaments and trying to have the fishermen submit their information during the tournament prior to the weigh-in, and they would submit the information afterwards, and so I will send the report to you guys.

One of the questions we also had for you guys was -- We have done two surveys for MyFishCount, and this is a pretty new process for the private recreational angler. When should we do the next survey? How often should we do surveys? Are we going to run into some of the burnout, where people are like I've seen these questions before, and I'm not going to do it again. Any suggestions like that would be greatly appreciated.

DR. WHITEHEAD: My initial thought is to do it every year. Then, when you collect the data and don't learn anything new, then do it every other year and continue that. I don't know if annually you would get the burnout effect. I don't think so.

MS. SPENCER: I will say that I included my personal email address in the invitation to take this survey, and I had least three or so people email me directly to say thank you for doing this survey and thank you SAFMC for looking for our feedback, and so this was a theme that -- Of course, it's a small sample size, but it's a theme that was repeated, that people were really eager to have their voices be heard through the survey and through the app.

DR. SWEENEY-TOOKES: I wonder if there's a way going forward, as John says, perhaps after the second or third year, but if there is somehow a way to streamline that survey and customize it per-person, and I don't know, and this is where we get into tech things beyond my understanding, cookies and such, but, if they're always answering the same reason for the trip, the same answers on different matrices, and the only thing they're changing is what they caught and the quantity, then you might have more people continue to buy-in if they didn't have to answer that whole large set of questions and just to, for this trip, this was what was different.

MS. SPENCER: You know, I'm going to have to look into -- That would be great, and if you can say, hey, if you've already participated before, we just have a couple more questions for you. Unfortunately, because of the way the IRB is structured, we don't have any -- It's not like we have any emails or personal identification in that way, but I wonder if there is a way, through Qualtrics, because, if they have a way of keeping track of people who have already taken the survey, and

they don't let the same IP address take it twice, and so, if they were taking it on the same computer, I wonder if there is a way to do that. I would need to enlist some tech help on that, though.

DR. CROSSON: Any other thoughts from the committee?

DR. WHITEHEAD: Is the MyFishCount data available for independent analysis, and did you all include the zip code question on that?

DR. COLLIER: Zip code is an optional field right now. We are working with ACCSP, and they want that to be a mandatory field, as well as birth date, and so, in the future, we will likely make that change, but, right now, because it's completely voluntary, I don't believe it's in there. We do get location of departure and also -- We're not getting the amount of trip or the distance the person is making prior to the trip. I think we are missing that. I will go back and look at the data.

The data is available. If you look at the -- It's safmc.data.net/myfishcount. It's available there, and it is aggregated. We are treating this much like commercial data is being treated and headboat data. Even though it's not a requirement that it's confidential, we recognize that fishermen would want it to be confidential if they're reporting it, and so we're treating it the exact same way, and so I made a Shiny app for the MyFishCount data, and you can look at that.

DR. WHITEHEAD: One question we're asked to answer is what is the potential impact of identified biases and other additional biases that should be considered. This is one of the discussion questions that we're asked to answer. I am tying the report, and so this one is on me.

DR. CROSSON: This is a question for staff. What is the purpose of the question? I mean, we can think of all kind of biases, but we might be more specific.

DR. COLLIER: The reason I wrote that question is to make sure, if we are presenting this information to a different audience, are we good with going forward with these results, or are we completely missing the mark?

DR. CROSSON: The results of this perception survey?

DR. COLLIER: Yes.

MS. SPENCER: To that, I actually have a question. Is there other demographic data that exists about participants in the snapper grouper fishery that we could compare the demographics that we have here?

DR. COLLIER: We would potentially be able to get it for saltwater anglers, probably through a license, by asking information from the different state agencies, based on the license holders. We might be missing some of the older crowd, at least in North Carolina, where, if you're over sixty-five, you are not required to have a license. If you're under sixteen, you're not required to have a license, but, the distribution from sixteen to sixty-five, you would be able to potentially look at that.

DR. CROSSON: MRIP does the socioeconomic add-on every few years, and I can't remember the last time they did it, but that information is -- It's maybe every three years or something like

that, where there is demographic information and expenditure data, and I want to say, generally now, that MRIP collects zip code, which is maybe why John was asking about that. We like zip code, because it gives you some idea of how far people travel to go fishing.

DR. YANDLE: Generally, any time we can get zip code, we want zip code.

DR. WHITEHEAD: I would say, in terms of how you present this and how representative it is, I wouldn't go too crazy, but you have information -- I think you have state-level information from MyFishCount, and I would just compare how representative they are by state and any other things that you can get and compare that to the MyFishCount data and then, recognizing that the MyFishCount data is citizen science and all the biases associated with that -- I would just leave it at that.

DR. COLLIER: I wanted to say thank you to Erin for putting this together. This has been a tremendous help and a great presentation. Good luck on your finals.

MS. SPENCER: Thank you. I'm excited to have those over, and I appreciate you all letting me come talk to you today. Thank you so much.

DR. CROSSON: You said you're going to FIU next year?

MS. SPENCER: Yes, I'm switching gears, and I'm working on sharks next, predator-prey dynamics, and so a little bit different.

DR. CROSSON: Okay. Well, stop by the Science Center sometime when you're in Miami.

MS. SPENCER: Great.

DR. CROSSON: All right. I think we've concluded this section. Do we have other business?

MR. HADLEY: A couple of items. We were discussing maybe coming back to the accountability measure conversation that we had yesterday, and then we have one other kind of housekeeping item, and I don't know which order you would want to tackle those.

DR. WHITEHEAD: Can we do accountability first?

DR. CROSSON: Yes.

DR. WHITEHEAD: Jim Waters sent out a great report on that, or his notes, which is basically the report that I typed up and sent around to everybody. If that looks okay, then I don't know if we need to talk about it any more.

DR. CROSSON: Everybody has been sending me lots of emails with notes, and I haven't had time to compile them yet, or even look at them, but I'm not surprised by that information, and so, if we don't need to go revisit that topic, then that's fine with me.

MR. HADLEY: All right. The other item is everyone is set to -- Their three-year term on the SEP is expiring, and so we hope that everyone will continue to want to serve, but, in order to do so,

we'll be soliciting basically whether or not you want to continue to serve and potentially applications for new members, and so we'll be getting in touch with you on that, but just a heads-up that that's coming fairly soon.

MS. WIEGAND: Also, we do have one open seat on the SEP, and so, if you know anyone who is interested and you think could provide some valuable insight into these fisheries issues, definitely encourage them to apply for the seat.

DR. CROSSON: I'm sorry. On the SEP or the SSC?

MS. WIEGAND: On the SEP.

REPORT AND RECOMMENDATIONS REVIEW

DR. CROSSON: If there's nothing else, I don't know that we have any public comment. Was there anything submitted online for public comment? Okay. There wasn't anything online either. For the report and recommendations review, I am going to try and parcel out some time to look at all of the emails that I've gotten from everybody and get this thing together, and I need to present a lot of stuff to the SSC, obviously later this week, but I doubt very much that I'm going to have time to finish the report before then, and so I'm just going to be going through some of the highlights for the SSC, and I will make sure I get this -- Obviously, send your notes to me, if you haven't already, and I will try and get drafts out for people next week, at the latest.

It also occurred to me that that discussion that we had about the fishery performance reports -- I can mention that when I talk to the SSC about the SEP report and bring that to their attention at that point, and so that's one way of sneaking it into the SSC's agenda. That's all I had, in terms of the report. We're meeting again next spring. Is there anything else that I need to note?

DR. WHITEHEAD: When you have an SEP report and we do something like that and you talk about it, I don't think that's sneaking it into their agenda. That's what you're supposed to do, right?

DR. CROSSON: Yes, that's what I am supposed to do, yes. Okay. Good. It's always an enjoyable discussion.

MR. HADLEY: Just in wrapping up, I just want to say a big thank you to everyone for coming down here, and I know, on behalf of all the staff, we certainly appreciate it. We always get such great insight from this group, and it's really a truly outside perspective, and so thank you.

DR. CROSSON: Yes, and, furthering what staff said, if you know anybody that is interested, that might potentially be interested, in being on the SEP or the SSC, because I think opportunities are open for both right now, let them know, because I'm always trying to rustle up interest the best I can, but I don't know -- I am not quite as involved in the academic community as other members of this committee are. I guess that wraps it up.

(Whereupon, the meeting adjourned on April 9, 2019.)

Certified By: _____ Date: _____

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Amanda Thomas
May 8, 2019

SEP Webinar April 8, 2019

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Burgess	Erika
Wilson	Evan
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Laks	Ira
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Neer	Julie
Iverson	Kim
Travis	Michael
Jepson	Michael
Errigo	Mike

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Mehta	Nikhil
Hudson	Rusty
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poland	steve
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Wiegand	Christina
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Burgess	Erika
Spencer	Erin
Wilson	Evan
Helies	Frank
Murray	Jason
Neer	Julie
Seward	Mclean
Travis	Michael
BROUWER	MYRA
Mehta	Nikhil
CRABTREE	ROY
Hudson	Rusty

poland	steve
Smart	Tracey
Park	William

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