

**PROCEEDINGS OF THE**  
**ATLANTIC STATES MARINE FISHERIES COMMISSION**  
**SOUTH ATLANTIC STATE/FEDERAL FISHERIES MANAGEMENT BOARD**

**The Westin Alexandria**  
Alexandria, Virginia  
**August 1, 2017**

**Approved October 19, 2017**

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1. **Approval of Agenda** by Consent (Page 1).
2. **Approval of Proceedings of May 2017** by consent (Page 1).
3. **Move to add an option for a 36 inch fork length or total length equivalent minimum size limit for the commercial fishery** (Page 13). Motion by Roy Miller; second by Tom Fote. Motion failed (Page 19).
4. **Move to approve the Cobia Fishery Management Plan for public comment as amended** (Page 21). Motion by Michelle Duval; second by Lynn Fegley. Motion carried (Page 21).
5. **Motion to adjourn by Consent** (Page 38).

**ATTENDANCE**

**BOARD MEMBERS**

Roy Miller, DE (GA)	Robert Boyles, SC (AA)
Rachel Dean, MD (GA)	Malcolm Rhodes, SC (GA)
Ed O'Brien, MD, proxy for D. Stein (LA)	Sen. Ronnie Cromer, SC (LA)
Tom Fote, NJ (GA)	Patrick Geer, GA, proxy for Rep. Nimmer (LA)
Lynn Fegley, MD, proxy for D. Blazer (AA)	Spud Woodward, GA (AA)
Kyle Schick, VA, proxy for J. Bull (AA)	Rep. Thad Altman, FL (LA)
David Bush, NC, proxy for Rep. Steinburg (LA)	Jim Estes, FL, proxy for J. McCawley (AA)
Doug Brady, NC (GA)	Martin Gary, PRFC
Michelle Duval, NC, proxy for B. Davis (AA)	John Carmichael, SAFMC

**(AA = Administrative Appointee; GA = Governor Appointee; LA = Legislative Appointee)**

**Ex-Officio Members**

Chris McDonough, Technical Committee Chair  
(Atlantic Croaker)

**Staff**

Toni Kerns	Mike Schmidtke
Robert Beal	Louis Daniel
Pat Campfield	Max Appelman
Kristen Anstead	

**Guests**

Joe Cimino, VMRC	Jeff Deem VMRC
Richard Cody, NOAA	Joseph Gordon, PEW
Heather Corbett, NJ DFW	Zack Greenberg, PEW
Roy Crabtree, NMFS	Jack Travelstead, CCA

The South Atlantic State/Federal Fisheries Management Board of the Atlantic States Marine Fisheries Commission convened in the Edison Ballroom of the Westin Hotel, Alexandria, Virginia, August 1, 2017, and was called to order at 10:45 o'clock a.m. by Chairman Jim Estes.

#### **CALL TO ORDER**

CHAIRMAN JIM ESTES: The South Atlantic State/Federal Fisheries Management Board is now meeting. My name is Jim Estes; I am the administrative proxy from Florida. I am going to try to speed us up through this meeting today, because we are a little bit behind.

#### **APPROVAL OF AGENDA**

CHAIRMAN ESTES: The first thing is approval of the agenda.

Are there any suggestions to be made to change the agenda? I have one myself; are there any other ones? What we're going to do is we are going to consider management response to the benchmark stock assessment; after we hear the traffic-light analysis for spot and croaker. If that's okay and there are no other suggestions, the agenda is approved by consent.

#### **APPROVAL OF PROCEEDINGS**

CHAIRMAN ESTES: Proceedings from our last meeting in May, are there any suggestions for changes to the proceedings? Seeing none; the proceedings are approved by consent. We have no one signed up from the public to speak on items not on the agenda. Is there anyone in that large crowd over there that would like to speak on an item not on the agenda?

#### **REVIEW AND CONSIDER COBIA DRAFT FISHERY MANAGEMENT PLAN FOR PUBLIC COMMENT**

CHAIRMAN ESTES: Seeing none; we will go on and Dr. Daniel will quickly go through our Cobia Draft Fishery Management Plan.

What I would like to do with this is he is going to go through each item. We can have questions;

and then we can make some suggestions, some changes if there are any. I would like to do this without going through the formality of motions. I would like to see consent for everybody to agree on doing this. If we can't find consent, then we will go through the motions.

DR. LOUIS B. DANIEL: Good morning everybody; it is good to be here. Just since your last meeting we've had several PDT calls. We also had an Advisory Panel conference call. We had three members of your advisory panel attend the call; and had very little substantive comments on the management options that we'll be providing; I'll be putting forward to you here in just a minute.

Quickly I would like to go through the primary objectives as set forth by the Board to complement the South Atlantic's coastal migratory pelagics FMP; to constrain harvest to the ACL established by the South Atlantic Council, and to provide the states with maximum flexibility to manage their specific cobia fisheries. Those were your principal objectives in developing the plan.

Real quickly a background, the significant overages of the recreational ACL in '15 and '16 resulted in closures to the EEZ. Those overages raised concerns for upcoming stock assessment and the stock status of cobia. The disproportionate impacts on closures within the management area, and recognition that the majority of fisheries occur in state waters, prompted your action in development of the FMP. Management unit has been a sticky topic. The Atlantic migratory group has been set at their range from Georgia through New York. Microsatellite DNA analysis and tag recapture data support these current boundaries as they were accepted by the Council's SSC.

But to be clear there is a lot of effort by the states to collecting additional data, and analysis that will continue and hopefully better delineate the stock, and better define mixing areas, if what we have in place is not adequate. That will be a component of the upcoming stock assessment. The stock status, SEDAR 28 is the most recent

stock assessment for cobia; that is with data through 2011.

At that time the stock was deemed to be not overfished, and overfishing not occurring. But there were concerns with the declining SSB over the last decade or so; culminating in a fairly low terminal estimate in 2011. The recent overages by as much as 100 percent over the allowable catch limits or annual catch limits raise even further concerns for the 2018 assessment.

Briefly, and all of this is in the draft fishery management plan, so I just wanted to make sure that folks had an opportunity to know what we're dealing with here. Cobia life history, very difficult to get a handle on cobia life history, many of the states try to get information as they can. But the fact that these fish are only available in our various waters for short periods of time, make it very difficult to get good annual estimates of things like DSIs and the like.

There is a lot of information that we would like to continue to collect on cobia life history; due to their episodic appearance in coastal waters. The recreational fisheries real quickly, is a very valuable recreational fishery particularly from Georgia through Virginia, with landings north of Virginia being episodic.

We've heard a lot from the for-hire and tackle manufacturing as playing a large role in the value of this fishery; and the directed fisheries earlier in the season tend to give way to more bycatch fisheries as the season progresses in some locations, not all. The current ACL for cobia is 620,000 pounds.

Landings in '15 and '16 exceeded a million pounds; and the federal closure of the EEZ as a result of the overages had a disproportionate impact on the states from Georgia through Virginia. Clearly those states that have primarily a fishery in the EEZ, like Georgia and South Carolina were more disadvantaged than those states that have more fishery in state waters.

Just to give you an idea as we begin to talk about seasonality. This is the best information that we have at this time from the last several years; showing that the fishery primarily operates from generally around April through October, with fisheries occurring a little earlier probably in the further south areas, and a little later in the season. But the vast majority of the catches occur in that May-June, June-July period.

Based on numerous iterations of the landings information, this just gives you a general idea if you just look across the bottom, and look at the averages for each state. These are their average landings over the last five years; just to give you a sense of where the landings have been, with a total in 2015 at 1.5 million pounds, with an ACL of 620. Our average is quite a bit at 793, is quite a bit above the 620,000 pound recreational ACL. In the commercial fishery the ACL is 50,000 pounds, average landings during the five-year time series is around 56,000 pounds. It is historically a bycatch fishery. More directed activity appears to be developing in some jurisdictions. How that will impact the current catch rates is yet to be determined.

North Carolina accounts for about 67 percent of the current commercial landings. A large percentage of that actually comes from bycatch in the large mesh gillnet fishery. But typically that is limited to one or two fish. Again, similar to the recreational fishery this is the average landings by state.

The Georgia/South Carolina data are combined due to confidentiality. You can see that the commercial landings and value don't quite compare with the magnitude of the fishery in the recreational fishery. Socioeconomic data are sparse in this fishery; certainly a very important and valuable bycatch to commercial fisheries. These fish are typically high value and they are available for a short period of time, so demand is typically high. When a commercial fisherman does have a cobia, it typically is a high dollar fish. The larger recreational fishery is far more difficult to characterize; and again because of its episodic occurrence there has not been a lot of

information directly attributable to the cobia fishery.

What data we do have is in Framework 4 with the South Atlantic; but further study is needed to adequately characterize all the cobia dependent fisheries. Habitat issues again, because of their episodic nature, and also because they are fairly rare, for whatever reason. There are few, if any, studies that directly characterize habitat preferences and needs for cobia.

Information on early life history is limited; and data are primarily based on incidental captures of limited numbers of fish in various fishery independent programs. I'm personally not aware of any program that lands any kind of quantity of juvenile or small cobia; and most of them are again bycatch in either directed fisheries, recreational and commercial, or in various trawl surveys or gillnet surveys or other types, haul seine surveys and the like.

Juvenile cobias are taken incidental to both commercial and recreational activities; as well as fishery dependent collections. These collections tend to occur in estuaries in the nearshore coastal ocean. Adults tend to migrate north and south, as well as inshore and offshore; tending to be closer to shore during spawning activities.

The ongoing tagging efforts should provide more information on their migratory habits. A lot of questions right now about their actual migratory routes, and that is an ongoing issue. Research and data needs, virtually anything that we could add to our existing understanding would be helpful. Any biological information, reproductive, ecology, movements, habitat, needs and preferences are mostly lacking or incomplete; and the socioeconomic needs I've mentioned.

Protected species in North Carolina commercial gillnets take a high percentage of North Carolina's commercial cobia catch, as bycatch in primarily the southern flounder fishery. But this fishery is held to very strict observer program requirements; and any information on cobia and

the bycatch of cobia in that fishery would be available, as well as any concerns related to endangered species interactions in that fishery as bycatch. But really no specific threats to protected species from cobia fisheries have been identified yet. At least in the state of North Carolina there was some observer coverage information on the recreational fishery; and I don't believe they actually had an observed turtle interaction, although anecdotal data says that there are some turtle interactions in some of our nearshore bottom fish fisheries, cobia being one of those.

Into the management program, management options for cobia were developed based on the efforts to complement these actions. Those actions proposed by the South Atlantic Framework 4, and options developed by the Board working group and the Plan Development Team. All approved management options would need to be implemented by April 1 of 2018; to affect the 2018 season.

I'll run through these real quickly. Obviously if there are any questions, I am happy to answer those as we move forward. Recreational size limit, Option 1 is status quo, not having a coastwide size limit. Option 2 is the minimum size limit of 36 inches fork length, which is currently the proposed size in the South Atlantic Framework 4.

What we noticed is that basically from Virginia north they tend to use total length. It was requested that we include a total length equivalent could be considered by the Technical Committee and the management board, if a state wanted to elect to use total length as opposed to fork length. Yes sir.

CHAIRMAN ESTES: Okay, are there any questions to Dr. Daniel's preamble or the recreational size limit options; any questions? Robert.

MR. ROBERT H. BOYLES, JR.: Not a question as much as a statement; to Dr. Daniel's point about measures need to be implemented by April 1. Of course you all know in South Carolina, we have

to go through our legislative process. The likelihood of getting that probably is relatively low. But I just want to make sure the Board is aware that whatever we're required to do, we'll do as quickly as we can with our legislature. But the probability of having something done in place by April 1 is probably low.

CHAIRMAN ESTES: Okay thank you. Michelle.

DR. MICHELLE DUVAL: Just a quick addition to the protected species information that Louis provided. We did actually have two interactions with sea turtles from private anglers during the observer program study that we had; and that was in 2013. There weren't any in 2015, but we did have a couple in 2013; so just to note that for the draft.

CHAIRMAN ESTES: What is the comfort level of the Board with the two options that Dr. Daniel described? Are there any changes that are suggested, seeing none; if we would go through the next section?

DR. DANIEL: The next is a recreational bag limit option, again status quo, no coastwide bag limit option; and Option 2 would be to complement the Framework 4 option of one fish per person.

CHAIRMAN ESTES: Are there any questions about that or discussion about those options, suggestions for additions or deletions? Seeing none; you're making my job really easy.

DR. DANIEL: There will be some additional information for de minimis states coming up in the presentation. I saw some of the northern states start to ask questions; and I'll try to let you know that is coming. The next issue is recreational vessel limit options. This one has been confusing; Option 1, status quo, no coastwide vessel limit. Option 2 was a state specific daily vessel limits of no more than 6 fish per vessel.

I think it would be helpful here to explain that when the states begin developing their plans. If you would like to move forward with some type

of a seasonal option, then you would be able to look at various vessel limits, in order to either lengthen your season or shorten your season, and allow more fish to the vessel. This is consistent with the South Atlantic Council's Framework 4; that would allow up to but no more than six fish per vessel.

CHAIRMAN ESTES: Okay questions; Dr. Rhodes.

DR. MALCOLM RHODES: Well, some current regulations in certain states are three fish. Can we throw a third option in with three; or would that just muddy the waters even more? I'm sure you've discussed it already.

DR. DANIEL: Yes, thank you, Dr. Rhodes. The situation as we have it now is states have implemented some measures to try to reduce harvest; and I think those numbers range from one fish to four fish to the vessel. I think what we would see if the plan is approved, and compliance plans are developed that in order to extend the season those numbers would probably be reduced, in order to extend the season.

That is what we've heard from the Working Group that's what we've heard from the Board and from the public that they want the longest season possible. I think by having up to six fish, it covers all the various options that I think the states would want to try to consider when developing their plan.

CHAIRMAN ESTES: Are you good with that? You could have a three-fish vessel limit for your implementation plan; and that would suffice. Are you good with that?

DR. RHODES: Yes that's fine. I was just at this point wondering if we need to put out all the different options. I understand having a maximum; states being allowed to limit their in-water to smaller amounts to increase the season. But I'm fine with that; just that it's another point of discussion.



CHAIRMAN ESTES: Are there any other comments or further discussion on this issue? Roy.

MR. ROY W. MILLER: Just a follow up on Dr. Rhodes point. Some of the states don't have the flexibility of offering a more restrictive regulation than what the plan calls for. I kind of go along with Dr. Rhodes. I would sort of like to see something less than six in there as well.

DR. DANIEL: If you all will keep that idea in mind, and once we get through the options I think it will become a little clearer of what the options are and how they work together. But if not, I'll address this issue in just a couple of minutes; if that's okay. Next are the recreational season and allocation options; and I'm sure there will be a lot of comments or questions on this. I will do my best to get through these three options as clearly as I possibly can; and take questions if that's okay. We had a lot of difficulty trying to come up with exactly how to do this, and so here is what we've got.

Option 1 is a state defined season and harvest control measures; each state would receive a hard recreational quota share of the federal ACL. Now there is some concern that has been raised that we can't allocate the recreational ACL. But we can call it something else if that would help. That is based on some sub-options that I'll show you here in just a minute.

The shares would be divided among the non de minimis states only; and the overharvest would be paid back in the following year, and underharvest would not carry over. Looking at Option 1, and looking at the various alternatives. This is the reference period sub-options for Option 1. These are based on the 3, 5, 10, and the 5 and 10 year average landings for the states; based on numbers of fish, which we've all agreed that's the way we want to look at this "allocation."

You can see across the options how the various percentages of the allocation to the various states changes, based on the years that you're

looking at. More recent time period tends to disadvantage certain states. The longer time series tends to disadvantage certain states. Interestingly, the five and ten year average that was a recommendation from the Working Group does tend to smooth it out a little bit, and tend to have less of an impact in terms of disproportion.

But those are the various options that we were able to come up with through the Working Group and the Plan Development Team. If we look at the historical landings reference period sub-options; for Option 1, considering an ACL of 620,000 pounds, based on the various scenarios these would be the specific allocations or the specific targets that you would want to try to reach when you set your season annual vessel limit.

That is what you're going to have, essentially – and this kind of gets back to the questions from Dr. Rhodes and Roy – is your options are really limited in terms of how you reach this target; be it a soft quota or a hard quota, in that you can either lengthen your season, get a longer season with a lower vessel limit, or you can have a larger vessel limit and a shorter season.

Those are really the only option that we have available; if we go with a state-by-state target for recreational catches. The hard quota, the hard payback, immediate payback was not very attractive to a lot of folks; and so we looked at a different alternative, and that's how we developed Option 2.

It is very similar, but instead of the hard quota it is more of a soft quota share. The average annual landings would be evaluated against the state targets or allocated quotas over multiple years. You wouldn't be depending on that one year; which we've seen through the landing time series that can have some wild swings in the landings data for cobia, based on the MRIP data.

In this option you would be selecting from an average landings monitoring timeframe of two, three or more years. That way you wouldn't

have to act every year if you have an overage; but it would be done over a time series of years. With this option the overharvest would be paid back over multiple year periods; and relaxed measures would be considered if underharvest. If a state was chronically under harvesting, and they wanted to increase their limit a little bit, or increase their season, they would be able to submit that plan to the Technical Committee and receive Board approval for that. The same numbers, in terms of the options and allocation or the targets across the states as Option 1, and essentially the same targets in terms of the numbers of amount of fish that would be allocated, based on the 620,000 pound recreational ACL.

The final option that we were able to come up with, Option 3, is essentially Framework 4; which would limit one fish per person bag limit, and a 36 inch fork length. But the coastwide overages would have to be paid back with reductions in the recreational ACL in the following year. If you look at the Option 3, these are directly out of Framework 4.

This is a coastwide season; it is not a state-specific season. It provides those seasons that were estimated with a January 1 start date, now they could be different for a May 1 start date. But based on a one fish, two fish, all the way up to a six-fish vessel limit. You can see how the seasons narrow considerably after you get past one or two fish.

But that again removes the flexibility that the Board indicated that they wanted to see, but this is one other option that is currently contained in Framework 4. Those are the seasonal allocation options; Options 1, 2, and 3, and I would be happy to try to address any questions the Board may have on those options.

CHAIRMAN ESTES: Let's make sure that we have the options that you're comfortable with. This is not like menhaden, but it certainly is more complicated than Louis's bluegills. Let's start out with some questions, if we could; Spud.

MR. A. G. "SPUD" WOODWARD: Let me give you a hypothetical. If the state of Georgia would like to have a season that extended, let's say from a March 1 start date into the fall, so that we could capture some fall fishing opportunities. This draft would allow us to put together bag limits, the size limits, and demonstrate that we would stay at or hopefully under what our allocation is.

DR. DANIEL: It would not allow you to modify your size limit. I mean right now the options for size limit is 36 inches for the recreational fishery, and a one-fish bag limit. What the state of Georgia would need to do is look at their catch rates; and probably end up, if you wanted to have a season that long then you would have a one-fish vessel limit, and then determine how long your season could be.

Then if you really wanted to extend it, you may have to have some mid-season closures in order to get into the fall. But in order to achieve what you're asking for would require an analysis by your state, submitting a plan to the Technical Committee. But as long as you stay within your target, your recreational catch target, and then you would be able to set up whatever seasonality you would like. Does that answer your question?

MR. WOODWARD: Yes, could we increase our minimum size limit and then run an analysis of the benefits of the increased minimum size limit in the context of the season?

DR. DANIEL: The discussions that occurred through the working group and the PDT were not to reduce the size limit any lower than 36 inches; because of concerns over the numbers of fish. Any increase in size limit, because it's based on numbers, could result in increasing harvest and increasing pounds of harvest. It also could result in increasing discard mortality and difficulties of handling the fish boat side. At the present time the document would not allow you, or the current document would not provide for you to be able to increase your size limit from a 36 inch size limit in order to extend your season longer.

CHAIRMAN ESTES: Robert.

MR. BOYLES: To follow up on Spud's comment. Could they not make a petition on conservation equivalency under just general conservation equivalency provisions?

DR. DANIEL: There is no conservation equivalency for the size limit, no. I mean in this plan the options that you had in the present time, based on the discussions that we've had over the last while, have been through seasonal lengths and vessel limits. You have the flexibility to use vessel limits and season length to stay within your catch limit. That's it at this particular moment in time. The only other option I can think of is a size limit; but increasing the size limit is not a present option.

CHAIRMAN ESTES: Other questions before we look at the options. Yes, sir.

MR. JOE CIMINO: I think Dr. Daniel did a good job at describing some of the issues with an increased size limit; but if I'm not mistaken the Southeast Regional Office, as well as what Virginia did. Their analysis also suggested that increasing size limits would also be targeting the larger, productive females; that we're really at that point where we're shifting to all female catch if we start moving up. I think that was another issue that had come up at the Council.

DR. DANIEL: I would just add the additional discard mortality of those smaller fish. We are seeing at least the anecdotal information of the coastwide fishery at this point is that the fishery is targeting on smaller fish at the present time; and so there is probably a lot of releases and discards that we're not capturing.

CHAIRMAN ESTES: Okay, are there suggestions, I guess specifically to Spud about some addition options then? Do we need to go back a little bit?

MR. WOODWARD: I think I'm getting the gist of this. It's just a little different than what we typically deal with; because we're using a pound, you know a pound is target in a predominantly

recreational fishery. It sounded like if I wanted a plan that would allow some harvest of cobia during the fall migration run back past Georgia.

Then I would have to have basically two seasons. I would have a spring season, and then I would have to close it during the summer, and then open it up at some other period in the fall; and then demonstrate that the catches within those two periods would keep Georgia within its soft cap, or whatever. Is that correct?

DR. DANIEL: Yes, sir. I think that's correct, and I think also there was a lot of discussion about numbers, and it is different than what we've done in the past. But one of the primary reasons was because there was such a big difference between the MRIP estimates of harvest, pounds, and the Southeast Fisheries Science Center pounds. After a lot of back and forth and discussion at the Working Group level and the PDT, we made the recommendation to go with the numbers; to avoid and eliminate that discrepancy between the two methods to estimate harvest. But you're correct in that if you wanted to try to come up with something that was going to extend your season for longer than you can get. You are going to have to come up with a closed season period in there, in order to allow the fishery in the fall.

CHAIRMAN ESTES: Yes, sir.

MR. WOODWARD: Within the framework of this draft plan, so I if I came up with that scenario, it was approved by the Board. It would basically be in place for some period of time, three years, four years or so. Then to keep us from falling victim to the volatility of these, because all it would take was one fish in October, and next thing I know we're completely out of whack. That would be the intent of this is to establish it, leave it in there and then reevaluate it after some period. We could sort of normalize what was happening. Is that correct?

DR. DANIEL: Spud, from my perspective that is the beauty of Option 2. That is what Option 2 allows, and it would yes. If the state of Georgia

has a 60,000 pound target and in the first year they catch 100, the next year they catch 20, the next year they catch 45. They averaged out to be under 60, you're good.

CHAIRMAN ESTES: Are there any questions about allocation schemes specifically. Seeing none; yes, Michelle.

DR. DUVAL: Maybe not so much a question, I just had a few comments and suggestions; just with regard to, and I spoke to Louis about this earlier. I think some of the language in those options; I just want to make sure that it's very clear that it's a soft target.

I've provided our PDT member with some suggestions for making sure that the language is appropriate, so that everybody understands that it is a soft state target. I'm just a little bit concerned that with some of the words that are in there right now; that stakeholders are going to focus more on the words, as opposed to the concept that we're trying to get across.

CHAIRMAN ESTES: Let's make sure that the Board is all on the same page about what this means. Are there any questions about what our intent is here? Yes, John.

MR. JOHN CARMICHAEL: I guess the way I read it I wasn't reading Option 2 as requiring payback; which is what it says in this last bullet, so that's the question. Is there actual payback as opposed to adjustment to stay on target?

DR. DANIEL: Yes, thank you John, and that is correct. Based on some discussions I had with some of the Board members, yes it is exactly as you described. It's not a payback as much as it is if the situation I described in Georgia, if they were found to be going chronically over their quota, and they may have to narrow their season a little bit or reduce their vessel limits a little bit, in order to accommodate and get back down to their average landings. But no payback, I will make sure that is clear in the document.

CHAIRMAN ESTES: Dr. Duval we will make sure that language is incorporated, thank you.

DR. DANIEL: Yes, and if your PDT from North Carolina can provide that language that would be very helpful. Thank you all very much. That was far less painful than I anticipated. The next issue is the commercial size limit options; and again we have Option 1 is status quo, no coastwide size limit option.

Option 2 is a coastwide size limit, the current minimum size limit of 33 inches fork length; and then I included the total length equivalent in here as well for the commercial fishery that could be considered by the Technical Committee and the Board. That is the current Framework 4 option that is currently in headquarters. Those are the two options for commercial size limits.

CHAIRMAN ESTES: Yes, Robert.

MR. BOYLES: Just for the record, I want the Board to recognize that cobia are game fish in South Carolina, so there is no commercial harvest sale; they may not be bought, sold, bartered, traded or otherwise enter commerce under current law in South Carolina.

CHAIRMAN ESTES: Any other comments or discussion about these options; seeing none?

DR. DANIEL: All right next is commercial possession limit options. I'm sure there will be some discussion on this one. The status quo would be no coastwide possession limit option, and Option 2 would be the state-specific possession limit of no more than two fish per license holder; not to exceed six fish per vessel.

CHAIRMAN ESTES: Yes, Joe.

MR. CIMINO: As promised. Virginia has set something up for what isn't a bycatch fishery. Our commercial fishery is mostly commercial hook and line. We have a cap number of hook and line fishermen that are allowed to fish; and we have seen some movement into that fishery. A few years back, before cobia was an issue, we had a request from some of those commercial

hook and liners to say I don't necessarily want to have to go out and find other licensed commercial fishermen to have six per vessel.

Would it be okay to just say six per vessel, no matter how many people on board? At a time when there was no cobia issue, we allowed that and we still currently do. As this moves forward, Virginia wouldn't be in compliance with that two-fish per vessel. However, I think the accounting for the commercial fishery may be a little bit off. I think what's happening right now is just using federal dealer reports. My belief is that in the last two years the commercial fishery has exceeded its harvest limits.

I believe moving forward, Virginia will have to do something; and perhaps the easiest first accountability measure is to get us back in compliance with this, so this may not be a large issue for us. I know we have to do something for our commercial fishery; even though it is small relative to the recreational catch. I just wanted to point out that right now as it stands, we have that six per vessel it is just not two per person.

CHAIRMAN ESTES: To be clear, you're not suggesting any additional options here, correct?

MR. CIMINO: Yes that is correct. I think at a minimum, as this moves forward, we in Virginia may be moving back to requiring two per license holder.

CHAIRMAN ESTES: Yes, sir.

MR. DAVID BUSH: Just a quick question. We do have some options on the recreational side for state-specific type management measures. Would it not be prudent to allow for such an option on the commercial side as well? Depending on how things move it may be a tool that might be vital to keep some tensions down within the state. I just don't know what the thought is. If there might be other discussion on allowing for some sort of a state-specific management of the commercial sector.

DR. DANIEL: That was discussed at the Working Group and the PDT level, the landings not nearly as concerning in the commercial side than the essentially over doubling of the ACL in the recreational fishery. There was a sense that the shares would be so small for the various states that the general consensus was to maintain the current ACL at the 50,000 pounds for the coastwide commercial fishery.

Based on what Joe just indicated from Virginia, and I think possibly in North Carolina. There are concerns about increasing harvest and increasing effort in the commercial fishery. Whether that happens or not, I guess we'll have to wait and see. But the general position of the Working Group was not to allocate that.

It also was the concern, well their point that we were able to manage the commercial cap or commercial quota with a census type of trip reporting that is real time, gave the states I believe, at that time at least, more comfort in maintaining a coastwide limit. If there is an interest by the Board to go with specific commercial allocations, then that would certainly be an option that we would have to develop and put together for your consideration. It is certainly possible.

MR. BUSH: Just a brief follow up. What you're looking at is a coastwide allocation for the commercial sector versus the commercial sector falling under the state quota that is being allotted to them. Is that what I understand? What you're suggesting is that we would have to provide for that separately if we took this route.

DR. DANIEL: Yes.

CHAIRMAN ESTES: I think Robert was next I believe, and then Lynn and then Dr. Duval. Lynn.

MS. LYNN FEGLEY: I just want to clarify a little bit in my own mind. If you're a de minimis state, the 50,000 pound commercial coastwide allocation. If an option was chosen to go for a coastwide size limit and possession limit, would a de minimis state follow that and then be de minimis for their recreational? I'm just trying to understand how

the commercial and the recreational de minimis interface, and maybe we'll get to that later.

DR. DANIEL: Well this is probably as good a time as any to discuss that now, from my perspective. The coastwide ACL is 670,000 pounds. The commercial allocation is 50,000 pounds. The Board would need to decide as we discuss here in a second on de minimis, if they want to set aside any quota or target or share to the de minimis states; and if they do would it include commercial? In which case the commercial de minimis states would have a specific commercial allocation; which would be inconsistent with the way the commercial fisheries are being managed in the southern states.

The alternative is to set aside just recreational de minimis quota to the de minimis states; which would be 6,200 pounds if you decided to do 1 percent, and have the commercial fishery 50,000 pounds based on the coastwide ACL, clear as 40-weight, I'm sure.

CHAIRMAN ESTES: Dr. Duval.

DR. DUVAL: Just to make sure everybody understands. Right now under the federal FMP, the coastwide commercial fishery, which runs from Georgia through New York, is managed under this 50,000 pound commercial annual catch limit. Right now the regulations are still two fish per person. There is no qualification for it being a license holder or anything; because there is no federal permit for cobia commercially.

It's just a two fish per person, 33 inch minimum size limit and that's it. When we were discussing Framework Amendment 4 at the council level, commercial representatives themselves, who were concerned about the fact that this bycatch fishery was starting to push up against its own annual catch limit, brought forward the suggestion to implement a two fish per person, no more than six per vessel limit for the commercial fishery coastwide.

I think trying to go down the road of state-by-state quotas for the commercial fishery under

this ACL would be over complicating things. I think that the two fish per person has worked. I do think that cap of having no more than six per vessel is probably necessary; given how harvests have increased, both in Virginia and in North Carolina over the past couple of years.

Certainly the commercial fishery is I guess maybe subject to the availability of these fish as it waxes and wanes; just as the recreational sector is as well. I just want to make sure everybody was clear what the regulations are right now versus what the Framework 4 regulations are; which is what is being suggested in this draft document for the commercial fishery.

CHAIRMAN ESTES: Okay before I go to Roy, Lynn, are you comfortable with that explanation that it has kind of been taken care of and considered at the Council level? Okay, Roy.

MR. MILLER: I have two questions. The first one is regarding the size limit. I'm frequently asked; what is the rationale for a differential between a recreational size limit for a given species, and a commercial size limit? My question is, how shall I answer? What is the rationale for the 33 inches as opposed to the 36 inches? That is the first question.

DR. DANIEL: Well, I'm not sure I can answer that in that the 33 inch size limit was maintained as status quo in the commercial fishery. I can only assume why the Council did that was to maintain the current harvest levels, but also there was no need for reduction in the commercial fishery at 33 inches. If you go to 36 that means they're getting a reduction, which they didn't need. It would probably result in more discard mortality if they went to 36 inches in the commercial fishery; particularly owing to the fact that a lot of those fish are taken in the large mesh gillnet fishery, where mortality rates may be a little higher than they are in commercial hook and line. That is the best I can do. I would hope that maybe perhaps one of the Council members would be able to explain why that decision was made in Framework 4, because where we were

complementing that action, and I can't do any better explanation than that.

DR. DUVAL: Roy, Louis I think has captured the rationale quite well. You know we were focused on the recreational fishery. We were looking for additional means to provide harvest savings, so an increase in the size limit was one way to do that. There is a tipping point there beyond which, you know you increase that size limit and you're actually not really saving much of anything, as well as the concerns that Joe Cimino raised earlier that were discussed at the Council level about impacting female harvest.

On the commercial side, there was more concern about simply making sure that there was a cap to keep harvest within the 50,000 pound limit; and that establishing a vessel limit was sufficient to do so. Again, as Dr. Daniel indicated, you know the majority of these fish are taken in a gillnet fishery, so the discard mortality is likely higher.

CHAIRMAN ESTES: Yes sir, Roy.

MR. MILLER: If I could follow up. I'm just envisioning a commercial hook and line fisherman being allowed to keep a 33 inch fish. Everyone acknowledges the episodic occurrence in the areas that I'm familiar with. As opposed to a recreational fisherman has to throw anything back under 36 inches, the reasons don't sound compelling to me. That's just my opinion for having a differential size limit. That's my two cents on that.

CHAIRMAN ESTES: Would you suggest that we add an option for a 36 inch minimum size limit for the commercial fishery?

MR. MILLER: That would be my suggestion.

CHAIRMAN ESTES: What does the Board think about that? Yes, sir. Kyle, go ahead.

MR. KYLE SCHICK: I think we have a precedent. In other fish we have this disparity also, because of various reasons; black sea bass, flounder, and what not. I think that I'm a person that says if

something's not broken let's not try to fix it and make it more complicated. I don't see that there is really a need to do that if the commercial fishery is under control.

CHAIRMAN ESTES: Tom.

MR. THOMAS P. FOTE: I was a little confused, because if there is no permit required for fishing commercially in federal waters, then a recreational person can say I'm out here fishing commercially and then would be allowed to keep a 33 inch fish? I'm just wondering how that would work.

CHAIRMAN ESTES: Well, Michelle and then I think Lynn.

DR. DUVAL: Yes Tom, so that's a conversation that the Council has walked down a couple times; in terms of whether or not to require a federal permit of any sort. We've recently discussed it, having had some concerns that there might be folks trying to exploit a loophole, so to speak, because there are a lot of recreational fishermen who do have a commercial fishing license. I know this has been a concern. In South Carolina it's been a bit of a concern in North Carolina that someone could just go and buy a commercial fishing license, in our case on the internet, off Craigslist, and they would be really fishing for pleasure.

But they would be a commercial fisherman; because they had that commercial license, but not necessarily selling those fish once they returned to shore. What we have been told from NOAA GC is that it would technically be illegal for them to fail to sell those fish once they returned to shore; since federal waters are currently closed to recreational harvest. Policing that I think is a different matter.

In North Carolina we do not require commercial fishermen to actually, they don't have to sell all the catch that they bring in. They are allowed to keep some for personal consumption. It is an issue. We have discussed it, and I think that is probably one of the reasons why the options

that you see in this draft fishery management plan include two fish per license holder.

CHAIRMAN ESTES: Lynn, I think you were next.

MS. FEGLEY: I just wanted to clarify to Roy's point that a state could be more conservative, correct? If there was some sort of user conflict in the state where you had a recreational and a commercial hook and liner fishing side by side catching different sizes, the state could opt to increase that size limit to 36. I just want to clarify it, since we had that conversation about the 36 inch lock down on the recreational side. How would that play?

DR. DANIEL: I think, I'll look over here to my right too, but any time the states want to be more conservative that is perfectly legit. I mean if the state of Delaware decided that they wanted to go to 36 across the board for their cobia fishery, commercial and recreational, I can't imagine the Board would object to that. There are some options coming up, and for de minimis states it would address that Roy.

CHAIRMAN ESTES: I would point out though that raising the minimum size limit if we were already going up against our ACL that raising the minimum size limit could actually exacerbate that. That is something to think about. Tom.

MR. FOTE: I'm just uncomfortable with a loophole like that being left into the document, when you could easily solve it by just going to the same size limit; and not look for people to wiggle room into doing it commercially when it's not commercial.

CHAIRMAN ESTES: Dr. Duval.

DR. DUVAL: Tom, I just want to be clear that the issue that the Council has been discussing really has nothing to do with size limit. It's all about whether or not there is a federal permit required for sale.

CHAIRMAN ESTES: Right now I think I have a suggestion from Roy that we add an option for a

36 inch minimum size limit. I want to see kind of where we're at. Kyle you expressed that you didn't think that we need to have that; but would there be a problem as having that as an option, because we certainly are going to vote these things up and down? Then David first, I guess.

MR. BUSH: At this point obviously it's been said if it's not broke, don't fix it. We've got enough stuff that we throw out at the public, weeding through it is a nightmare half the time. It's obviously not necessary, and if there are states that wish to go forward with something a little more conservative that's already available to them. I think this is sufficient as it is, maybe even more sufficient than it needs to be.

DR. DANIEL: To that point to some degree, I would just also point out that Framework 4, which is currently in Headquarters, currently has it, so you would have a disconnect between federal waters would be at 33 and if states elected to go to 36, it's not to say don't do it. But you could make a motion to add if that was accepted by the Chair, to add a 36 inch size limit. But again, where that has been an issue, where it could be an issue in the de minimis states is addressed in the next option.

CHAIRMAN ESTES: Roy, tell me where you're thinking about. Would you be comfortable not adding it as an option, but allow the states to become more restrictive or not?

MR. MILLER: I still favor including it as an option. But I've heard the arguments to the contrary, and I'm willing to do what the majority feel is most important in this regard.

CHAIRMAN ESTES: I don't think that we have a consensus on this issue, and so perhaps we need to have a motion so we can figure out what we're going to go do. Yes sir.

**MR. MILLER: Well, then I move that we add an option for a 36 inch size limit for the commercial fishery.**



CHAIRMAN ESTES: Okay, do I have a second? Tom Fote seconds. Discussion, Roy, do you want to discuss it any more or any others? Okay, if it's all right with you let's leave this motion on the table for right now and look at the de minimis options and see if this takes care of it.

DR. DANIEL: De minimis options, Option 1 is not to have a de minimis program at all. Option 2 would be to include the de minimis program. At present the states average total, commercial plus recreational landings from the previous two years must be less than 1 percent of the average total coastwide landings for the same period.

The regulations would be one fish per vessel limit, with a minimum size limit. The Option 2 regulations would be the minimum size limits for de minimis would be the 33 inches for commercial and 36 inches for recreational, or 36 inches for both. Those are the two options that would go out to public comment under *de minimis*.

Going back, if you look at the landings data in the draft document over the last ten years, I believe I'm correct in saying, and I'm sure I'll be corrected if I were to say it wrong. In the last ten years, I think Maryland has had two years of landings, New Jersey's had two years of landings, and Delaware has had one year of landings. Delaware had 400 pounds in one year. Maryland averaged about 1,200 pounds in one year, and New Jersey had that strange situation where one fish equaled 66,000 pounds. That was based on the Southeast Fisheries Science Center data; not the MRFSS data. The landings in the de minimis states are extremely episodic. There are many years that go by when they don't land any fish. But there have been anecdotal reports that there is at least in Maryland, some additional catches going on. From some of our advisors, both from the South Atlantic and from the ASMFC, they indicate that it is just anecdotal information that there are more fish being taken in Maryland.

They're not showing up in the MRFSS data, and they're not showing up in the Southeast

Fisheries Science Center data. Right now I think it's important, and this is from a holistic standpoint, to recognize that we've got two pretty substantive issues going on with cobia right now outside of this FMP; one being the decision by the Council at their June meeting to move forward with options to transfer authority to the Commission, or in some way, shape or form, plus the upcoming stock assessment.

There are two big issues that are going to be arising for us in about the next two years. It is really likely that this plan is really more short term; as these issues at the council level and at the SEDAR process work their way through the process. I want to make sure as we're thinking about these things we're not, at least from my perspective, we're not looking at a long term fishery management plan that's going to be in place for 10 years and everybody's stuck.

One of the very important components of this from the Plan Development Team, and from talking to some of the Board members, was making sure that these allocations were not etched in stone. What's going to happen over the next couple of years with de minimis is anybody's guess.

If these fish start moving north, and we start having to adjust de minimis, then that little bit of quota that is currently being allocated to the primary states is going to be reduced somewhat to account for those. That is a long winded way to say that the de minimis thing is a very difficult thing to try to develop under the current plan.

The way it's set up right now is that all four states, Maryland, Delaware, New Jersey and New York would be considered a de minimis state; for lack of a better term. It would not be 6,200 pounds per state; it would basically be 6,200 pounds for the region, if you looked at 1 percent of the coastwide landings. That's the way we're looking at it right now.

CHAIRMAN ESTES: Okay, I think I have Roy, Robert, and Lynn.

MR. MILLER: I mentioned that I wanted to address one more topic, and this is it. Specifically with regard to de minimis, for those states like Maryland northward, wouldn't this de minimis classification as it presently reads serve as sort of a disincentive for declaring de minimis?

If we didn't declare de minimis, I presume that we could fish recreationally at one fish, 36 inches with a boat and a vessel limit of six, whereas if we're de minimis it would be one fish per vessel. Why would we want to declare de minimis under just those circumstances? Do you see where I'm going?

DR. DANIEL: If you are a non de minimis state then you would be subjected to a target. The state of Delaware's target would be 40 pounds, so then you would be expected to develop a season and a lesser limit to maintain your catch at 40 pounds, if you're not a de minimis state. The benefits of being de minimis, at least from my perspective is that the de minimis states are allowed one fish per vessel year round. They don't have to worry about a seasonal; which is going to be an issue for those states that have to reduce their harvest down to the current ACL. The difficult problem we have is that the current Framework 4, the current management in the states north of Virginia, basically complements the federal actions in state waters. It looks like; yes it looks like you've got six fish.

But it's going to depend on how NMFS implements the Framework 4 option. One of the possibilities is that the federal restrictions would mirror the specific state restrictions in state waters. I don't anticipate an opportunity where the states would be able to operate on a six fish limit, and have us be able to maintain the current ACL.

CHAIRMAN ESTES: Robert.

MR. BOYLES: Not necessarily on de minimis, but just following up on Dr. Daniel's comments about the efficacy, and how long this plan may last. I noted, I believe it was last week, Senate, Commerce, Justice, State Appropriations

Committee report that specifically mentioned and requested NOAA spend a lot of time quickly updating the cobia stock assessment.

CHAIRMAN ESTES: Dr. Crabtree, or Dr. Carmichael, can you give us any ideas about how that might be going?

MR. CARMICHAEL: The stock assessment, yes. Well, it is planned and the intention is to evaluate stock ID, beginning the early part of next year; and then to be in position to begin the assessment proper with the data workshop in the latter half of next year.

CHAIRMAN ESTES: Lynn.

MS. FEGLEY: I have comments and concerns about a list. I'm not sure how you want to handle that. But I guess I'll start with the criteria for de minimis. Assuming that we have a 620,000 pound coastwide ACL, and that's assuming that we're taking 50,000 pounds out for the commercial. If we go to 620,000 pounds, and the de minimis states are working on, so 1 percent of that would be 6,200 pounds.

If any one of our states on a two-year average harvests 15,000 pounds in one year, we could go over that 1 percent very quickly. Then we wouldn't be de minimis anymore, and then we would be taking quota out from under the non de minimis states. I wonder if the de minimis criteria, because of the high variability in these data.

I wonder if the de minimis criteria should be somewhat consistent with the soft cap idea for the non de minimis states. In other words, if you go over 1 percent in one year, the following year you are under observation; and the Board will decide after that second year. I worry about the variability. I worry about these really large spikes that arrive. I guess I would be suggesting adding an option on the criteria that somehow deals with that. I'm not sure I have the wording off the top of my head, so that's my first issue. I have two more; however you want to handle it.

CHAIRMAN ESTES: Let's do that one first. Toni has a comment.

MS. TONI KERNS: Lynn, what if we averaged for a longer period of time. Do you think that that would help us out? Especially if these landings are somewhat sporadic, and can jump, do you think that that would cover it?

MS. FEGLEY: It might. Not having thought really hard about the math. I guess what I would suggest is if maybe, could the Plan Development Team think about a strategy that would buffer a little bit from this variability, and add such an option? It might, Toni. I'm not sure. I just don't want to compromise the non de minimis states, and suddenly have to be allocating quota away from them; because of some anomalous or not, some spike in MRIP landings data.

CHAIRMAN ESTES: Go ahead, Toni.

MS. KERNS: The other thing is that the Board does have some ability to look at a state's landings and say to that state, just as you said right now under all the plans. We recognize you went over, but we're still going to give you the de minimis status.

I think we've done that before in the lobster plan for a state. The Board does have some flexibility there to give the states a grace period from year to year, even if they do go over a little bit. But I think you could add an option in here averaging two years, averaging three years, or you could take one out. It's up to the Board.

CHAIRMAN ESTES: Okay before we get to that I have Joe and John on this subject here. Joe.

MR. CIMINO: I guess I have to start with a confession. I'm not sure what de minimis means in the commercial fishery; but I would think that it might be prudent to decouple the two, since we shouldn't assume that there is going to be that same variability. I've looked at these numbers for far too long.

I have no question that Maryland, Delaware, or New Jersey is going to be bouncing around in and out of de minimis status for the recreational fishery. If one intercept could equal 66,000 pounds of fish, we're going to be seeing that a lot. It may provide some benefit to the commercial fishery; if they're able to be on their own, and apply for de minimis status just based on their harvest estimates.

CHAIRMAN ESTES: Dr. Carmichael.

MR. CARMICHAEL: Yes, I was looking at the New Jersey; you know they had 69,000 pounds in 2012. It seems you stretch that out to ten years they're still going to be over that 1 percent. Then you would put them into that fold with the other four states for ten years, based on a one-year event.

It shows Jersey having landings in 2006 and 2012. I think that gets at one of the issues that the Council dealt with a lot when setting accountability measures for spiky recreational data. There is a big difference between spiky data like this, and just having generally uncertain data; which varies around some central tendency.

This is just sort of all or nothing. The trouble with averages of all or nothing, is when you get that all, instead of having an issue for one year, well suddenly you have an issue potentially for however many years you've decided to average. If you took that one thing of Jersey, you know they would be in for two years or three years or five years or ten years. It really wouldn't matter, because the magnitude of their landings was so great. It's overwhelming that period, and like Joe said, it comes down to what the inflation is for the intercept that had a fish and the amount of effort in that cell, and how it works out in MRIP.

I think the idea of not having this hard limit, and having some way of seeing if you have a persistent problem versus a one-year data situation. MRIP is a survey, it's not going to be the same as a census or something type

situation. It's a survey. The PSEs are high on a state level; and we're looking at a state level when we look at these, you know, 60, 70 percent is not unheard of on the PSEs on a state level.

I think anything that's tied to the MRIP data in an absolute percentage is going to be trouble, and if we can have it written up so there is no question that you would be monitoring it for persistence to see if there really is a situation developing with fish shifting or effort shifting or something going on that is compelling people to catch more fish than they have, and what they've been expected to catch. It would probably serve us a lot better, and we wouldn't have to be justifying why we're not considering this state being over a problem.

CHAIRMAN ESTES: What if we instead of doing the averaging, what if we said – this is just a suggestion – what if we said that if they went over the 1 percent for two or three consecutive years, then we would consider them non de minimis. Would that take care of the concern if we had those two options in there?

MR. CARMICHAEL: Yes, I think that would help, two or three years, or two consecutive, or two out of three, some things like that would really help.

CHARIMRAN ESTES: Can we do that?

DR. DANIEL: Yes sir, we can do anything you want us to do. I think one of the beauties of the Commission too, is being able to do as John indicated. I mean we come in here, and if you look at the allocation for Georgia is around 60,000 pounds and one fish at 3.3 pounds in New Jersey resulted in 66,000 pounds. Obviously that's an issue that the Board can look at and say, wow!

That one fish happened to be caught had a high effort level, and it's really meaningless; and it may not even be a cobia, and move on. I don't think people are going to be shut down because of that. I think with the trends as we move forward, if we start to see more than five or six

fish being intercepted then we may have an issue.

But until then, this would be a way to avoid what John indicated in terms of paying back for one year for ten years. We can certainly add that option to the document to accommodate the multiple years; to make sure that folks aren't flipping, flopping back and forth between de minimis and not de minimis, if that is the pleasure of the Board.

CHAIRMAN ESTES: Does anybody have a problem with that; any objection? No, so I was hoping, Roy that these de minimis options would satisfy your interest in the size limit; but I don't know that it does.

MR. MILLER: Well, we haven't discussed the size limit in this most recent conversation, but I think the suggestion is a good one to allow some flexibility in terms of the timeframe; so that the rare event of an intercept detecting a cobia in the catch doesn't become problematic for the state. Because it is a rare event, and it's just a matter of chance as to whether that particular person happens to get interviewed. I don't think a state should be penalized for that rare event.

CHAIRMAN ESTES: Okay with that I think we need to go back to our motion. We're done with the options right now; excuse me, Lynn.

MS. FEGLEY: I'm still working on this list. Really the two subjects that I had on these were the commercial, the delineation between the commercial and the recreational, and also on the size limit. For the commercial de minimis, it seems like the option under commercial, the de minimis option where you would have 36 inches for both commercial and recreational; that assumes that you're going to have some sort of commercial set aside for the de minimis states. It's at odd with the 50,000 pound coastwide commercial ACL, correct?

Because if you go 50,000 pounds coastwide, the option there was 33 inches, two fish per vessel. Two fish per license, no more than six per vessel.

But in the de minimis, if I'm a de minimis state, I either get 36 inches or 33 inches, one fish. What's my set aside? I would suggest that the public understands that they have a choice there. You choose to go with the coastwide 50,000 pound ACL; you decouple the two, like Joe Cimino was saying, or your working on some sort of de minimis set aside.

DR. DANIEL: Just bear with me for just a second. I think that setting aside commercial quota to de minimis states creates a problem. If you decouple, as Mr. Cimino indicated that would separate out. You would be dealing with the recreational fishery; which seems to be the more concerning.

One option would be to manage the de minimis commercial fishery the same way you manage the coastwide commercial fishery. I mean there is no difference between a commercial fisherman in Georgia, and a commercial fisherman in New Jersey; in terms of the Framework 4. What Framework 4 does is it sets up the commercial allocation, and a Georgia to New York commercial limit.

Now whether or not that's going to create the you-know-what storm. If the commercial folks are allowed two fish per license holder up to six per vessel at 33 inches, which is the current Framework 4 option, and the current non de minimis option, and the recreational are limited to one fish at 36.

I don't know how that's going to play out. I can imagine how it's going to play out, but that is one option. At the present the intent and purpose behind de minimis here is to allow that rare event to be retained in the de minimis states. Whether or not you have any evidence from landings data that anybody catches more than one fish, I don't know. I haven't seen it. That was the intent and purpose.

CHAIRMAN ESTES: Okay, Lynn.

MS. FEGLEY: I'll just go to my last one, since I'm muddying the waters right and left. The final

one, the concern with de minimis is the size limit options. Just to make the point that in the Maryland portion of the Chesapeake Bay, we're not going to see a lot of 36 inch fish. We do have some charterboats that are encountering these fish.

We talk a lot in Maryland about our charterboats losing ability to diversify their fisheries. I have concerns about seeing our recreational fisheries locked out with a 36 inch size limit. I wanted to propose that two things, potentially two options. One is that in exchange for the ability to collect some information on smaller cobia that the de minimis states could do a 28 inch fork length, one fish per vessel. That would be one option.

The other would be to provide an option for de minimis states to match, in terms of their recreational regulations, a non de minimis state. What I mean by that is for example, if the state of Virginia hypothetically had a two-fish vessel limit at 36 inches, and a three-month season. The state of Maryland could implement like regulations as a de minimis state.

DR. DANIEL: Let me recap, and make sure I understand what you're saying. A second option would be a 28 inch size limit for recreational de minimis; one fish, 28 inches fork length, to try to account for the smaller fish that tend to be encountered north of Virginia.

The other would be that a de minimis state could select from the four existing state's implementation plans that would include one fish, 36 inches; but have a vessel limit and a season, and that those de minimis states could mirror a selected states management plan and implement that as their own. Does that capture what you?

MS. FEGLEY: You recapped that brilliantly, yes thank you.

DR. DANIEL: Those are not in the current draft FMP. One or both of those options would need to be offered by the Board.

CHAIRMAN ESTES: Michelle.

DR. DUVAL: Lynn, I just want to make sure I understand your second option. It's not like you would be able to pick from any one of the other four state's implementation plans. I thought I heard you say that the other option would be for you to complement the regulations of an adjacent jurisdiction. That's what I thought I heard you say.

In other words, Virginia is adjacent to Maryland, so you could look at it complementing in implementing the same regulations as Virginia. In other words, I wouldn't expect you to implement the same regulations as North Carolina, because things are a little bit different. I just want to make sure I understand.

MS. FEGLEY: Well, the intent was to ensure that we have the flexibility to match Virginia; so that's correct. It really is to make sure that we don't find ourselves at odds with a border state; because we're so close and we have boats running back and forth. Obviously maximum flexibility would be Louis's recap. But functionally I don't see us just playing multiple-choice from states implementation plans.

CHAIRMAN ESTES: David.

MR. BUSH: Just a quick question. What are the current landings that we've been quoted for these de minimis states? What are their regulations based on it, and is that based on the charts of what the regulations were previously, or are there no regulations at all; so whether they had 40 pounds or 200 pounds it's just whatever they caught.

MS. FEGLEY: We have no regulations in Maryland. We actually don't have authority to write them until this plan goes through.

DR. RHODES: Well, just one question from like a law enforcement perspective. I guess this would Virginia. If your fishermen had a 30 inch fish in possession, said yes but we were fishing in Maryland, you know Maryland borders and we

caught it there. Would that present a problem to law enforcement, or if the fish is in Virginia waters no matter where it was caught?

MR. CIMINO: Yes the latter. The possession limit, or excuse me, it's written as possession, so if you're in possession of that fish then that is what you have to comply with.

CHAIRMAN ESTES: Lynn suggested two additional options for de minimis states. Is there anybody that has some concerns about that? Okay seeing none; we'll add those options to the document. Hang on, Toni has a correction here.

MS. KERNS: Just to clarify, because I'm not clear what the two options are now. Lynn, are you saying one of them is to allow for the states to adopt the regulations of a neighboring state? Then what's the second option?

MS. FEGLEY: The second option was to lower the minimum size for the de minimis states; so it would be one fish per vessel per day. But rather than 36 inches fork length, it would be 28 inches fork length. The reason for that is because the intent there is to make that size limit somewhat equivalent with a 50 percent maturity.

I don't know that I have that right, but that was the idea there. The further idea is to get some information from our fishermen about these fish; since as I understand the movements of these smaller fish, there is very little information about these littler fish out there. That might be helpful.

DR. DANIEL: I'm not trying to get into the discussion here. But I will point out that one of the issues that came up in this discussion was these fish are moving towards the northern extreme. If they're up there in late September, October, do they ever get back south? I mean is there an opportunity for those fish to join the spawning stock and actually contribute to the fishery?

That's a point that I bring up, just for your consideration to think about. I can't tell you one

way or the other. But if you've got fish in New Jersey in October, the chances of them getting back to the South Atlantic and joining the spawning stock is probably pretty remote. Is it a population, is it something that is outside the range that normally wouldn't survive or not? I don't know.

CHAIRMAN ESTES: Speaking of New Jersey, Tom, I think that you had your hand up a long time ago.

MR. FOTE: I just was wondering if we were going to withdraw Roy's motion and my second, or just still wait to handle that later.

MR. ESTES: Nope, I think we are about time to go back to that motion; if we can bring it up on the screen. Okay the motion is; move to add an option for a 36 inch fork length or total length equivalent minimum size limit for the commercial fishery; motion by Mr. Miller, seconded by Mr. Fote. Is there need for further discussion on this motion? David.

MR. BUSH: Just one brief comment. Based on what I've heard here this morning, correct me if I'm wrong, there is no biological necessity for this motion. Is that correct?

CHAIRMAN ESTES: I think it was a philosophical issue, I think if I'm not mistaken, Roy. Is that correct?

MR. MILLER: That's correct.

CHAIRMAN ESTES: Joe.

MR. CIMINO: Just quickly, because Tom did mention he was concerned about a loophole. I do want to say that most of the commercial fishery, I believe, and Michelle could correct me if I'm wrong, is occurring in state waters. For our fishery, there is no loophole there. You would be a commercial fisherman if you are commercial fishing those. I did just want to point that out.

CHAIRMAN ESTES: Okay, any further discussion?  
**Seeing none; all in favor raise your right hand,**

**please, all opposed like sign, abstentions, null votes. The motion fails; 3 to 6 to 1.** Okay Louis, if you'll continue please.

DR. DANIEL: All right that takes us through the management options for the draft fishery management plan for cobia. What I was going to do real quickly, since we have Dr. Crabtree and Mr. Carmichael here, just review real quickly the Framework 4 recreational actions that are in Headquarters now; that would be implemented once approved. It's a 620,000 pound ACL, one fish per person, 36 inch fork length size limit, and a vessel limit up to six per vessel.

Commercial is 50,000 pound ACL, two fish per person, 33 inch fork length size limit, with a limit up to six per vessel. Then just because this is an issue that has come up on multiple occasions, once approved measures would be implemented to control harvest to the ACL. The methods or the accountability measures to address overharvest, would be reduce vessel limits, shorten the season, or close the fishery or EEZ.

From discussions it appears that the first line of defense in trying to maintain the catches within the ACL is to reduce the vessel limits for the current up to six fish. But that will be determined; and I think once our implementation plans are reviewed by the Technical Committee and approved by the Board in February. I think that gives the NMFS administrator ample time to determine how best to implement the measures from Framework 4 for the 2018 season. Are there any questions on the Framework 4 implementation; while we have the deciders here at the table? All right, finally we have a proposed public hearing and compliance schedule. Just to go through, our intent and hope is we've got a short window of opportunity between now and the annual meeting is mid-October. We would like to try to get these public hearings conducted as quickly as possible. We would like to get those done in the first half of September.

It may be possible, I know from talking to North Carolina, would like to have the meeting held

outside of the Council meeting week. Virginia would be a possibility as well, prior to the meeting week, which is September 11 through 15. Then there is a possibility of having a hearing with the Council at their meeting in Charleston on Tuesday night in Charleston; if that's satisfactory to the South Carolina delegation and the Council.

Then potentially having the Georgia meeting the following day down either in Savannah or Brunswick, or wherever Georgia would like to have it. That would knock it out pretty quickly. I think that does stretch us towards the end of that line, so if folks would like to have them earlier than that that is fine.

But we will need to set up hearing dates very quickly in the next day or two, in order to get these scheduled and set up to receive public comment. In October at the annual meeting you will review the public comment; from both the public comments, the public e-mails, and the advisors will review and deliberate on the draft, as well as the Enforcement Committee, and consider final approval of the plan.

I put down January 1, 2018. I figured that gives states about two months to submit an implementation plan to the Technical Committee/Plan Development Team for review; and Board approval at the February meeting, with an April 1, 2018 implementation date. In discussions with your PDT members, those of you that have them, they felt like July 1 of each year would be appropriate for state compliance reports to be due. That concludes my report.

CHAIRMAN ESTES: Thank you, Louis. I appreciate all the hard work that you and your team did. Toni wanted to request a clarification.

MS. KERNS: I just checked with Lynn, and I just want to clarify for the record that we'll look to see what size limit the 50 percent maturity is; and we will use that size limit to add for the option, just so everyone is clear; if it's a different size limit that is why.

MR. MILLER: Louis, could I request that you review what we decided with regard to de minimis states and commercial?

DR. DANIEL: For the de minimis Option 2, it would be one fish per vessel commercial, and it would be either a 33 inch size limit or a 36 inch size limit. Those would be the options for public comment.

MR. MILLER: That's interesting that going to public hearing we have either 33 or 36 for commercial; but we don't, okay. In spite of our vote to the contrary to reject the option for a 36 inch commercial. You're saying its back in there for de minimis states.

DR. DANIEL: That was an option that was requested by the Working Group and the PDT was to include a potential for a 36 across the board in the de minimis, and that's what was in the FMP. Now it can be taken out. But that is what we were requested to include. We did not include what we talked about earlier, having all the states comply with the Federal Framework 4 commercial options. That was not brought forward by the Board and included as an option. At the present time that is not an option that would be going out to public comment. It seemed like that was something that the Board should have at least had nodding interest in. But nobody moved on that so that would not be included at this time.

MS. FEGLEY: I think that might have been what I was trying to say, which I did a really bad job of saying. That it should be an option for all the states. When we say coastwide 50,000 pound ACL for commercial. That is everybody coastwide.

DR. DUVAL: Yes, I agree with that and I think that that is less complicated from a commercial perspective than trying to have a commercial de minimis. I think Louis was trying to clarify that as well. Again, I'll just emphasize that all the states from Georgia through New York, or in federal waters off the states of Georgia through New York.



You know that 33 inch minimum size limit, two fish per person, existing commercial regulations applies to all those states. Obviously it applies in federal waters, it's not state waters. But any harvest coming in from federal waters, and any harvest from state waters all counts against that federal ACL. I just want to make sure people understand that; again on the commercial side.

DR. DANIEL: What I'm hearing I guess, or seeing, is a general consensus to include that option as an option for all the states. That would be a no de minimis commercial option; to make it as clear as I possibly can. If everybody is comfortable with that we can add that to the list of options in de minimis. Mr. Chairman, I don't see anybody looking like they want to oppose that.

CHAIRMAN ESTES: Right, I think that's what they were trying to get at. We will add that as an option. Is there any more discussion on the document? Michelle.

DR. DUVAL: Let me stand between you and lunch. Just maybe to make sure that Lynn's concern is completely addressed, maybe just a little bit more clarification under the commercial fisheries management options that coastwide means it would apply to everybody; Georgia through New York. That way I think that would assuage some of people's concerns.

CHAIRMAN ESTES: Okay, done. **Is there any more discussion? If there is not, I would entertain a motion to accept the document for public comment. Michelle.**

**DR. DUVAL: So moved, Mr. Chairman.**

CHAIRMAN ESTES: Do I have a second? Lynn Fegley. I hate to ask this. Is there any more discussion? Seeing none; let me read the motion. **Move to approve the Cobia Fishery Management Plan for public comment as amended; motion by Dr. Duval, second by Ms. Fegley. Is there any objection to the motion? Seeing none; the motion passes.**

I never thought I would see evolution occurring. Although I'm old enough I should have seen it. But I think I saw cobia evolving towards menhaden status. What we're going to do now is we're going to break for lunch, and we'll come back and have some more fun.

(Whereupon a recess was taken.)

CHAIRMAN ESTES: Okay, we are ready to resume. At the end of our agenda today we had the Atlantic Croaker FMP Review. I think what we're going to do with it is we're going to do it via e-mail, and so we're going to delete that item off our agenda for now.

### **2017 SPOT BENCHMARK STOCK ASSESSMENT**

CHAIRMAN ESTES: Right now we're going to hear about the Spot Stock Assessment.

Then we'll hear about the Peer Review. Then we're going to go directly into Traffic-Light Analysis. We'll have questions in the middle of that; but before we talk about accepting the stock assessment for management purposes, we'll do the traffic-light review. If we can start, Chris, if you're ready go ahead.

MR. CHRIS McDONOUGH: Just a quick note starting out. Some of the stuff in the datasets and the methods we used for the spot stock assessment is very similar, it is the same stuff we did for the croaker stock assessment. This is going to be a little more abbreviated than what we went over for the croaker assessment.

For the outline, just what we're going to cover. The assessment was using commercial and recreational data. We're looking at the shrimp trawl fishery discards another fishery dependent source and three fishery independent surveys. The NMFS fall ground fish survey, SEAMAP, and the North Carolina DMF Program 195. Then we're going to cover the modeling approaches and results, and then finally the reference points and the stock status.

Then one note, we'll talk a little bit more about this as we get into it. But the fishery independent datasets were split between, we used split indices and they were split by age group between Age 0 or pre-recruits, and Age 1 plus, which were the fully recruited fish; primarily in the catch survey analysis model.

Okay, start out with the commercial landings. Commercial landings from 1950 to present have fluctuated from about 638 to 6,500 metric tons; the majority of spot that are landed coming from Virginia and North Carolina. The long term trend has been a fairly steady decline; and there has been a lot more inter-annual variability in the last ten years or so. Landings have been negligible from states north of New Jersey; however landings in these states have been increasing in recent years.

The lowest year for commercial landings for the entire dataset occurred in 2012; which was within the assessment time period. The shrimp trawl discards, discards were relatively high prior to 1996, when bycatch reduction devices were not required; but did begin decreasing in the early 1990s. There were particularly high discards in '91, which was due to high effort and catch-per-unit effort. Then discards became relatively stable through the 2000s.

Despite slightly declining or stable trends in effort during the 2010s, they actually have kind of turned up a little bit in recent years; and that increase was due to increasing catch-per-unit effort. Generally the trends in the discard estimates follow the same trends that you see in the shrimp landings by the trawlers; which are pretty much what you would expect.

For the recreational catch along the Atlantic coast, this is from during the MRIP time period '91 through 2014. Angler recreational harvest, spot has ranged from a low of about just under 4.5 million fish to a high of just under 25 million fish, and the harvest has generally declined over the time series; although not as much as the commercial catch has. The proportion between the harvest and the fish that were released alive

has stayed relatively consistent over that entire time period. For our fishery independent datasets, starting off with the North Carolina data and this is where we split them between the Age 0 and the Age 1 abundance indices. Both Age 0 and Age 1 abundance indices for spot varied throughout the time series.

They were both somewhat lower in the 1990s, with larger peaks through the mid-2000s. The highest Age 0 abundance occurred in 2008, and the highest Age 1 plus abundance occurred in 2006. For the NMFS Trawl Survey, abundance was high in the beginning of the time series; particularly in 1989 as you can see in the figure, and then dropped and remained relatively low in comparison throughout the 1990s and the early 2000s for both stages.

Abundance for Age 0 and Age 1 plus increased in the mid-2000s to the high point in the time series that occurred in 2012; after which it declined fairly quickly in 2013 and '14. This was in numbers. For relative biomass, it was at its highest in 1989, which was followed by a low relative biomass; same similar trend as with numbers through the early '90s.

Then a little bit more variability through the 2000s, again reaching the 20 year high point in 2012, followed by that decline in 2013 and '14. One thing to point out with the NMFS Trawl data was that the CVs for the index of abundance were relatively small. They ranged from like 0.03 to 0.31, and averaged right about 0.09.

The low CV values actually give this index a lot of weight in the model; compared to some of the other indices that were used. That was something that we actually examined in the sensitivity analysis. For SEAMAP, the index of relative biomass indicated that abundance was low in '89, and then began to increase a little bit in the early '90s.

From the mid '90s to the early 2000s, it remained relatively low. Then there was a large increase in 2005, followed by a decade of ups and downs in abundance; so you saw a great deal more of

variability in the SEAMAP index. For our modeling approaches, we looked at the spot with two different models. The first was a surplus production model; the aggregated indices that tracked the exploitable relative biomass, and then the time series of fishery removals in biomass.

Then the other model we used was a modified catch survey analysis. Now the catch survey analysis is a forward projecting two-stage population model, this is where we were using the Age 0s and Age 1 plus. You can use data or literature information that informs on the life history characteristics of the species; which is helpful for spot, because they are relatively short lived.

The indices tracking the relative abundance of the stock can then be split into stages with similar life history, or fishery characteristics. In this case we were using it in terms of selectivity of pre-recruits and recruits of the fishery. Then the modified CSA used the time series of fishery removals in numbers.

Then one thing about spot, particularly compared to croaker was that we really lacked a reliable time series of catch-at-age data with spot compared to croaker. We just didn't have as much age data, so it wasn't as easy to run through the different models and how we were looking at it. The time series for both of the models ran from 1989 through 2014. The modified catch-survey analysis was chosen as the preferred model. Now, to start off, our surplus production model basically showed that biomass has been increasing steadily since late the late '90s; '99 was the lowest point in the time series. Then fishing mortality was at its highest in '91, and then kind of was variable through the '90s, but then it has essentially been declining since about the mid '90s to where it has been in a steady state for about the last ten years or so.

For the modified-catch-survey analysis, both recruitment and post-recruit abundance were relatively high at the beginning of the time series in 1989. Recruitment remained high through

'91, and then post-recruit abundance begins to steadily decline. Total abundance is highly variable throughout the mid-1990s, and recruitment did fluctuate quite a bit.

Recruitment and total abundance hit the time series low in 1997. Then recruitment in post-recruit abundance then kind of fluctuates around it, but overall has an increasing trend through 2013; although there was a time period from 2006 to 2009 where there were some poor recruitment years in there.

The 2014 recruitment was relatively poor, which resulted in the decline of total abundance; despite the post-recruit abundance was increasing at that time. Then post-recruit abundance at the end of the time series has actually increased; close to the levels at the beginning of the time series, while recruitment in recent years excluding that terminal year has increased to about half the magnitude of the peak recruitments at the beginning of the time period.

For spawning stock biomass, it followed a similar trajectory as total abundance, generally increasing since 1996, with the exception of 2001 where you have that dip. There was a slight downturn of spawning stock biomass at the terminal year in 2014; however, that estimate was still the second highest in the time series.

Even if it had dropped off a little bit, it was still higher than where it started out. Post recruit abundance is a larger component of the total abundance in recent years; and that resulted in higher spawning stock biomass than during the periods with high abundances early in the time series. Fishing mortality, initial fishing mortality in the data series started out at 1.06.

It fluctuated over the next couple of years, increasing. Full fishing mortality then generally fluctuates around a declining trend throughout the time series from the mid '90s or so, and there were some exceptionally large peaks in the fishing mortality due to upticks and removals; in

'91, 1995, and 2001, which you can see right on the figure.

Then the static-spawning-potential ratio, if I get my terms correct, is an inverse function of fishing mortality. SSPR has fluctuated about an increasing trend, opposite of what we see with fishing mortality throughout the time series. Very low SSPR occur in the beginning of the time series. This was the timeframe when shrimp trawl discards were at their highest, and also when those peaks in fishing mortality occurred for the most part.

SSPR has fluctuated around a mean over the last five years of about 0.48, which was about seven times greater than the mean SPR during years when the bycatch reduction devices were not required; at which point it averaged about 0.07 from 1989 through 1995. Comparing the two models, the general trends in the population estimates from the surplus-production model and the modified catch-survey analysis overall were similar, and verified kind of the general dynamics of the stock over the model time series. The surplus production model tended to underestimate  $F$  and overestimate biomass; compared to the modified CSA model. The fishing mortality estimates, in terms of the different units, biomass for the surplus production model, and numbers for the modified CSA still had very similar exploitation patterns.

The modified CSA model appears to better capture the inter-annual variability in abundance and fishing mortality that was observed from the stock; and indicated by the input data. Those different patterns may be due; at least in the surplus-production model was a bit more rigid and restrictive, possibly as a function of the constant intrinsic-growth-rate parameter.

The terminal year of the spawning-stock-biomass estimate from the modified-catch-survey analysis, is more reflective of the decline in relative abundance observed in some of the indices. Given those points, the Stock Assessment Committee recommended that the

modified CSA that is why we picked that as the preferred modeling approach; to inform on stock status.

Now we did compare this to the traffic light, which the traffic-light analysis, which we're going to talk about more after this, was compared to the assessment results to determine the utility and reliability of using the traffic light to inform on stock status. The traffic light is currently used to inform on stock status annually.

We use it in our management-trigger exercises, and then the modified-catch-survey analysis is proposed to inform stock status moving forward on an intermittent basis; according to future stock assessment needs as they occur, and however that schedule happens. However, the traffic light still has the potential to inform on stock status in the future, between stock assessments, so it's important to understand how the two approaches compare and contrast.

The pattern in the estimates for the spawning stock biomass from the modified-catch-survey analysis were generally in agreement with the abundance metric, which was the fishery independent surveys for the traffic light. There is no recruitment reference point estimated for the modified CSA; but qualitatively the annual recruitment estimates did match up in many of the years with the young-of-the-year metric used in the traffic light, but not in all years.

That one was a little fuzzier. That wouldn't be unexpected in that some of the differences, particularly for juvenile indexes, shouldn't be surprising because between the two approach, because you get a lot more inter-annual variability in juvenile indices due to recruitment variances as opposed to changes in population.

Now the harvest biomass did not match up quite as well. The harvest metrics from the traffic light were not in as close an agreement, in this case the matching up with SSPR, and then the established harvest metric from the traffic light does not include the discard information that

was used within the modified CSA model, so it doesn't account for those removals.

The discrepancy there may not be surprising; just because of the high proportion of fishery removals that the shrimp trawl fishery accounts for that was used in the modified CSA. One consideration in improving the traffic light in the future would be to incorporate the fishery removals as an added metric. The way these are treated, if you look at the treat the spawning stock biomass that is above the target, or not overfished level the same as the traffic-light proportion have red less than 30 percent, where everything is good and we're not concerned. Then the spawning stock biomass between the target thresholds, I'm not overfished but the spawning stock biomass is still below the target as that 30 to 60 percent range of moderate concern. Then any spawning stock biomass below threshold, or actually overfished the same as that traffic-light proportion of greater than 60 percent.

If you look at it within that context, those two approaches agreed about 65 percent of the time between the model results and the traffic light. Even though there were some differences, the status from the two approaches, you know they weren't opposite trends. There were some similarities.

The traffic-light analysis was a little more conservative in the final two years; suggesting moderate concern particularly with the harvest, whereas the modified CSA was a little bit more optimistic, less concern. For our F reference points, the static-spawning-potential ratios were used due to the uncertainty in the stock recruitment relationship.

We were using a 30 percent SPR threshold, and a 40 percent SSB target. The fishing reference points were based on fishing mortality necessary to achieve that SSPR. The biomass reference points would also be estimated from that F percentage reference points, so that our mortality threshold at F 30 percent was 0.5, and

then our target threshold was a fishing mortality of 0.36.

Then finally we got down to stock status. The stock status or the model showed that the stock was not overfished at the beginning of 2014, with a spawning-stock biomass of just over 19,000 metric tons, which is well above the target of 7,800 metric tons and overfishing did not occur in 2014. The 2014 fishing mortality was 0.249, which is below the target of 0.36 and the SSPR was estimated at 0.507. With that I will take some questions. I went through that awful quick.

#### **PEER REVIEW PANEL REPORT**

CHAIRMAN ESTES: Thank you. Before we go to questions, could we hear Pat talk about the Peer Review Panel report first, and then we can have questions about all of that if that is okay.

MR. McDONOUGH: Oh okay that's good.

MR. PATRICK A. CAMPFIELD: The stock assessment review for spot occurred back in April. We had a panel of three reviewers with expertise in spot biology and population dynamics; as well as statistics and general stock assessment modeling. If we could jump a slide or two, those are the panel members.

The panelists were tasked with providing scientific review based on the data inputs, model results, and sensitivity; and providing their opinion on the overall assessment quality. The panel concluded that the stock assessment provides the best available science on spot. They think the Assessment Team did a really great job of turning over every stone and looking for spot data, and attempting a variety of different analyses, and as Chris described, a couple of different modeling approaches.

However, they thought that the stock status determinations were uncertain; due essentially to conflicts in that the biomass was increasing in all the model runs. But the various assessment data components showed conflicting population

trends; specifically the contrast between decreasing landings and increasing indices. In some cases the model struggled to reconcile the differences between indices; for example, the NMFS Trawl showed a very rapid increase in spot in recent years, roughly six-fold, whereas the other primary index, the North Carolina Trawl showed only about a 10 percent increase. There were other surveys like ChesMMA, which were included in sensitivity runs, which actually showed a declining trend; so the panel had concerns about these conflicts.

Therefore they do not recommend using the absolute estimates of population size; however the trends in landings and surveys suggest that current removals of spot are sustainable. I'll just quickly touch on the highlights for the review terms of reference. The first one was evaluate how the data were used in the assessment. Again the panel found that all potential data sources were considered.

A subset of data was selected correctly and weighted correctly, and the uncertainties were characterized in the appropriate manner. They did have two recommendations, one to develop fishery dependent CPUE indices that might improve our understanding of the fishery trends. Of course we had the landings, harvest information and some recreational effort information, but not commercial effort information. The second recommendation was to consider standardizing all the survey indices.

The next TOR was specific to estimating bycatch and discards. The Panel really applauded the Assessment Team and improving the methods this time around for spot as a new assessment, and for croaker; and that they used the latest and most innovative approach characterizing shrimp trawl fishery bycatch, through a combination of shrimp fishery observer data, as well as the SEAMAP Coastal Trawl Survey data, and sort of calibrating that backwards, based on when the bycatch reduction devices were implemented in the mid '90s.

The third term of reference was to evaluate the methods and models in the assessment. The

Panel commended the Assessment Team in attempting multiple models, as Chris described the CSA and surplus-production models; and agreed that the catch-survey analysis is preferred, because it incorporates more of the available data.

However, the Panel was concerned about different trends in total mortality, when comparing between the catch-survey analysis and catch-curve analyses that the Assessment Team brought forward. As I mentioned, the model also struggled to reconcile differences between trends in indices, and recommended considering an age-length-combined-structured model; for example scale models to allow fuller use of all available data.

They also had an important recommendation about exploring time-varying catchability, specifically for the indices that are used in the assessment; that that may help hash out some of the distinctions and disagreement between the survey indices. Term of reference 4 was to evaluate how the assessment characterized the sensitivity or did sensitivity runs and characterized retrospective bias in the assessment.

The Panel found that that was all done correctly, and there was relatively minimal retrospective pattern. They concluded the model was sensitive to index selection, and that some of the sensitivity runs using year-by-year total mortality or Z estimates, resulted in a different stock status than using an average total mortality. This was one of their major concerns about drawing absolute conclusions about stock status and numbers from the assessment. The next term of reference was to characterize uncertainty in the stock assessment. The Panel felt that the Assessment Team did everything correctly there. Moving on to estimates of stock biomass, abundance and exploitation, again although the Panel does not recommend using the absolute estimates, they did have several take homes that they were confident in from the stock assessment; first that the abundance indices

generally are stable or increasing across the stocks range.

Secondly, that catch appears to be stable or declining over time and that in combination, the catch and indices patterns indicate declining fishing mortality rates relative to the status of the stock in recent years. The relative status of the stock in recent years is better than the late '80s and early '90s.

The shrimp fishery effort and spot bycatch magnitude appears to be declining, and the Panel recommended reviewing the shrimp bycatch estimates annually, and folding that into the traffic-light analysis that Chris presented and we'll hear a little bit more on. That final take home seems to be most important, because the shrimp bycatch can comprise 70, 80, and 90 percent of the total mortality for spot.

The next term was to evaluate the choice of reference points, and the methods used to estimate them. The Panel did agree with the SPR target of 40 percent and a threshold of 30 percent. Those are similar levels for other sciaenids and species are related to spot, so they were comfortable with that. However, again the stock status cannot be determined reliably, because models with alternative assumptions resulted in different stock status.

Finally, the Panel commented on the research recommendations. The first was to request an increase shrimp trawl fishery observer coverage, again that's critical to spot and croaker assessments, and is relatively poorly sampled. We did the best we could in this assessment, and also to increase the collection of lengths and ages in those bycatch fish. The second, to expand the collection of lengths and ages, especially for fishery dependent data, and third to organize an otolith exchange to develop a standard aging protocol for spot.

The last term was to have the Panel comment on timing of future assessments. They agreed with the Assessment Team to do the next benchmark in five years, but given some conflicting trends with spot, especially in years after the

assessment, to continue the traffic-light analysis and to try to fold in the shrimp bycatch estimates in to the TLA.

CHAIRMAN ESTES: Okay are there questions, or what are the questions? Yes sir, Mr. Bush.

MR. BUSH: I guess I just felt like somebody should ask something after this. It seems like things are at least not going bad in this fishery. I think North Carolina is one place that very proud of the work that these guys have done down there. They haven't implemented measures based on their current research.

But the work that they've done in North Carolina over the past few years, and this being the third year of their bycatch reduction efforts, should make a continual improvement in this fishery. But if I understand right, correct me if I'm wrong, the general idea is that the spot fishery is showing at least a stable if not positive trend; given that bycatch composes a significant part of its mortality, is that correct?

MR. McDONOUGH: That is correct. The shrimp fishery component of, in terms of removals, whether you're talking biomass or numbers is an order of magnitude above everything else combined. It's very significant, even though the numbers have come off in the last 10; 15 years are much lower than what they were in the early '90s. But they're still there.

This was the first assessment where we really included them in the model. We've looked at the previous two assessments; it was considered, but we didn't really have a good way to incorporate it in the model, so this is the first time we've actually been able to incorporate it into the model. But as I'm going to go over it with the traffic light stuff after this, there are some concerns with recreational and commercial numbers that have been declining fairly steadily. There are definitely still some issues.

CHAIRMAN ESTES: Mr. Miller.

MR. MILLER: Chris, in light of what you just said. The effect of shrimp trawl bycatch has been decreasing in recent years; and yet apparently we're not seeing a concomitant increase in commercial and recreational landings. I was wondering if you have any speculative cause and effect comments in that regard, or is there no relationship between those two?

MR. McDONOUGH: I'm not going to say there is no relationship. But they do seem to be decoupled. I mean you're getting those kinds of different trends, and one thing at least in the shrimp fishery. You know if you go back to that time period in the late '80s, early '90s. The overall effort in the shrimp fishery has been declining for years.

I mean you've seen a reduction in the fleet. The guys maybe have become more efficient, but you see far fewer boats. I would tend towards the reduction in the overall effort that we've seen in the decline in the shrimp fishery over the last 20 odd years, more so then or it seems from the datasets then something biological necessarily.

That is part of why we've been spending so much time on the traffic light stuff, is to try and tease out some of the differences in why we're seeing such differing trends. Croaker, they seem to match up a lot better between different datasets, and spot just don't track as well across commercial data, recreational data in the fishery independent indices. Does that answer your question?

MR. MILLER: Yes, of course I'm calling for speculation, but it sort of begs the question is there an environmental component that is driving this stock that we're not accounting for; you know with landings and that kind of thing? Maybe that environmental component has been depressing the expected increase we would hope to see as a result of bringing the shrimp bycatch under management.

MR. McDONOUGH: Actually that is something that we did discuss at the review workshop. Ken Able brought that up numerous times. Some of

the explanations from that perspective could have been, especially given the timeframe when the fishery independent surveys that we were using, a lot of that occurs in the fall shifts that kind of go back to temperature shifts, and when fish are moving in and out of the estuary offshore environments, where they're being necessarily subject to the bigger offshore surveys.

There definitely could be and likely are some environmental components. We did tease around with some of the data, trying to figure out if we could incorporate environmental data; and we didn't really come up with an effective way to look at it. But it has been discussed certainly, and we've talked about it.

CHAIRMAN ESTES: Mr. Bush.

MR. BUSH: Just to address one point there, Mr. Chairman. One of the things that might be looked at as well is reductions in effort in that fishery. We've got areas where we had exemptions that fishermen would fish on the shoreline, and those are no longer exempted. That is due to interactions with marine mammals.

But there are other fisheries where we have other species that they can only fish for a certain amount of time before those interactions pile up. That particular fishery is shut down as well. I'm sure that has got to have quite a bit to do with the landings numbers, probably not all of it, but I'm sure it's substantial.

CHAIRMAN ESTES: Chris.

MR. CHRIS BATSAVAGE: Similar to Roy's question about environmental factors. I guess Joe and I were kind of side barring during the presentation of the similarities of weakfish that we've seen in previous assessments, where there seemed to be maybe a bottleneck somewhere in the life span of weakfish, where we're seeing with this species the indices for the Age 0 and at least some Age 1 plus fish that may or not be at the point that recruit to the commercial and recreational fisheries.



They aren't really showing any troubling trends yet. The landings have really fallen off, especially even in the last couple years since this assessment. Has the Stock Assessment Group discussed maybe exploring maybe changes in natural mortality over the time period, similar to what we've seen with weakfish?

MR. McDONOUGH: No, we really didn't look at that in terms of changing natural mortality over the timeframe of the data. I was going to say Jeff ran the CSA model, and I don't think of anything else that we necessarily covered in the workshops. I just can't think of anything else. It's a good point. We did consider looking at different selectivity periods of the fishery and some other things that were run in the sensitivity analysis. We didn't really cover as much here; but not that now.

CHAIRMAN ESTES: Are there any other questions before we get into the traffic light analysis? Seeing none; Chris if you're ready to go we can do that.

#### **CONSIDER 2017 TRAFFIC LIGHT ANALYSIS FOR ATLANTIC CROAKER AND SPOT**

MR. McDONOUGH: Just a quick review for a traffic light. The traffic light management framework was established in 2014 under Addendum II to Amendment 1 for Croaker, and Addendum I to the Omnibus Amendment for Spot, to evaluate fisheries trends and develop state specified management actions.

The traffic light is a statistically robust way to incorporate multiple data sources; whether they be fishery dependent or independent, into a single, easily understood metric for management advice. The name simply comes from assigning different colors, red, yellow and green to categorize relative levels of indicators on the condition of either the fishery or the population or whatever metric you're going to use. Then state specified management action would be initiated when the proportion of red in the index exceeds the specified thresholds, 30 percent or 60 percent for both harvest and

abundance over three consecutive years for croaker, and two consecutive years for spot. That would be all the indices, not just one or two of them.

I'm going to start off and talk about croaker first, and then I'll cover spot. The croaker traffic light uses a 1996 to 2008 reference period, which is based on the timeframe from the 2010 stock assessment data. The indices in the traffic light included both commercial and recreational harvest, as well as four fishery independent surveys; the NMFS Fall Groundfish Survey, the VIMS Trawl Survey, North Carolina DMF Program 195 Survey, and then the SEAMAP Survey in the southeast.

For the harvest here, the traffic light, and I'm going to look at them individually and then show you the composite. The traffic light for the commercial landings has been above 30 percent every year since 2011; and this was actually the fourth year in a row where landings were, that red proportion was above 30 percent, and has been above 30 percent since 2011, and would have tripped at those three consecutive years from 2013 through 2016.

The bottom one, the recreational harvest level in 2015 was among one of the lowest annual harvest levels in the entire time series, and 2016 was actually the lowest recreational harvest the entire data series. That is going from 1981. The red proportion in the recreational index was 54 percent in 2015, and just under 61 percent in 2016; and would have been the second consecutive year where that index had tripped.

Again, this has to have that level for three consecutive years. Now the composite index for the two combined, the red proportions have been above 30 percent since 2011, with the index tripping from 2013 through 2016. The harvest composite index would indicate, or certainly doesn't necessarily indicate directly by itself that a management response is necessary; but it certainly is cause for concern.

The important trend to point out is a decline in both commercial and recreational landings that have been occurring for Atlantic croaker. All right for the fishery independent surveys, the NMFS Survey, which is the top one, actually saw an increase in 2015. Actually I'm covering both 2015 and '16 with the croaker here, because we didn't run a traffic light assessment last year, because we were in the midst of the stock assessment.

But it showed an increase in 2015, and it declined a little bit in 2016. But there was still no red in the index, so we were staying above the long term mean, which it's been above since 2011. Then the SEAMAP Index also increased in 2015, and then declined a little bit in 2016. The index values remained above the long-term mean for both years, which is why you've got that yellow-green proportion color range, and there was no red in the traffic light for SEAMAP.

SEAMAP you have to go all the way back to the mid to late '90s before you are getting those low levels. The composite index showed high proportions of green in 2015 and 2016, mainly because of the increases in both NMFS as well as SEAMAP Index. However, they did stay above the long-term mean and that target threshold for the last couple of years.

We're seeing an example of what we've been talking about, what is kind of decoupling what we're seeing in the fishery dependent metrics versus what we're seeing in the fishery independent surveys. The juvenile fish, this is the two surveys that we're using for that were the North Carolina Index, as well as the VIMS Index.

North Carolina Index declined in 2015, increased slightly in 2016, but also did not drop below the long-term mean for the data series, which is why we've still got yellow and proportions of green in the index. The traffic light does indicate declining index values, because you're seeing progressive decreasing in a proportion of green in the index, which is heading back towards long-term mean or below it.

However, it's still above, and that's going from its peak value in 2012. The VIMS Index increased significantly in 2015, going from 2014 it went up like 1,600 percent. But 2014 was one of the lowest years in that particular index. Then it declined a little bit again in 2016. But the index value was still above the long-term mean for both 2015 and 16, and hasn't had three consecutive years above 30 percent since 2008.

With these juvenile indices you are going to get a much more high degree of variability going from year to year; compared to the adult surveys typically. Then for the composite index, the juvenile composite traffic light didn't have any red for either 2015 or '16, and so it did not trip. It didn't trip in either year.

Then as I said that high-angle variability in the different color proportions is generally a characteristic more of changes in recruitment levels versus changes in population trends. To sum up the croaker stuff, the harvest composite traffic light did trip in both 2015 and '16; however the abundance traffic light composite showed the opposite trend, with increasing abundance any of those being above that red percentage threshold.

With only the harvest traffic light tripping, and not either of the fishery independent composites, management action is not required under Amendment 2. However, those discrepancies between what is happening in the harvest index, and not seeing similar trends in the abundance indices, does warrant further study; which is what we've been looking into.

Likely explanations for that include differing size and age structure in the sample populations, regional differences, or temporal shifts in movement patterns between inshore and offshore, and that timing that's involved; and indirectly that could be some type of environmental variable. The croaker TC has begun some preliminary investigation into using some age-partitioned traffic light analysis, which we're going to cover a little bit after this, to see if we could get better clarification and synchrony

between the indices to maybe help us see what's going on better.

That is it for the croaker traffic light, and we can just continue on. I'll go to the next slide, now we're going to talk about spot. Spot uses a 1989 to 2012 reference period, which was based on available datasets; and again it triggers if two consecutive years of our red proportions are greater than 30 percent.

One note, with the recent completion of the spot stock assessment, in addition to looking at the age proportion or age-partition traffic light, one of the things we may end up looking at is re-examining the reference time period; depending on what datasets are being used and if we incorporate any more. But just like with the croaker, the indexes used are both commercial and recreational harvest, as well as three fishery independent monitoring surveys. The NMFS Fall Groundfish Survey, the SEAMAP Survey, and then the Maryland Department of Natural Resources Juvenile Fish Survey, which was used strictly to look at Age-0 spot.

Okay for the harvest indices, commercial landings for spot in the Atlantic coast declined 70 percent, going from 2016 to 2015. The total annual landings have declined 90.7 percent since 2004, 2004 to 2016. The commercial landings in 2016 represent the lowest annual landings for spot commercially in the entire time series. That goes back to 1950.

It's only about 10.9 percent of the long-term-mean landings in the data series. For the recreational harvest, spot declined just under 67 percent in 2016. The annual harvest in the recreational fishery has been below the long-term mean since 2009, and was still below that threshold in 2016; with a red proportion increasing to 62.6 percent.

Although it wasn't the second year in a row above 30, so you just get that big jump from 2016. The recreational index actually would not have tripped, whereas the commercial one did. For the composite index, the composite

characteristics showed a general decline in landings; which is primarily in recent years it has been since 2008, with increasing proportions of red annually. The composite characteristic did trip in 2016 at the 30 percent level, its second consecutive year at 30 percent or greater.

The increase in the recreational proportion is driven more by the decline in the commercial landings relative to the recreational landings. However, in 2016 they were both fairly high, and the continued declining trend in the spot fishery landings seems to be driven more by declines in the Mid-Atlantic region, which accounts for most of the commercial and recreational harvest versus the southeast coast for the whole coastwide landings.

For the adult abundance indices, the NMFS Index had a slight increase in 2016 from 2015. It was only 1.3 percent. It was still below the long-term mean, so you're still getting a little bit of red in that index; but this index wouldn't have triggered since 2003 was the last time you had two consecutive years over that 30 percent threshold.

Then the SEAMAP Index declined just about 7 percent in 2016, and remained above that long-term mean. The SEAMAP Index did not trigger either, and that one wouldn't have triggered since 2007. Both of these, while showing some slight declines in recent years from the peaks that occurred in 2011, '12, '13, have been trending upward.

For the composite index the traffic light for adults showed very little change from 2015 to 2016. That slight increase in catch levels in the NMFS Index was offset by the slight decrease in SEAMAP, so you're basically seeing them stay about the same. That composite would not have triggered in 2016.

Then for the juvenile fish with the Maryland Survey, you see those large fluctuations in catch-per-unit effort that alternating red and green, again typical of young-of-the-year fish, with variable recruitment in year class strength versus

what is going on with the population. However, the index did trip at the 30 percent level; it's actually tripped at the 30 percent level in 2013-14, and at the 60 percent level in 2015 and '16. This continues that where we're seeing more of the declining trend that's occurring in the Chesapeake and in the Mid-Atlantic, versus what we've seen in some of the South Atlantic indices. In the age-partitioned traffic light, which I'll be showing after we get through this, it shows some examples from the ChesMAP Survey, which also shows similar decline. To summarize for spot, the traffic light composite indices tripped for the juvenile spot index, but not for the adult composite characteristic.

The harvest composite characteristic also triggered in 2016; mostly due to the decline of what we've seen in commercial landings. Then with declines in the harvest metric as well as juvenile abundance metric that appears to be going on. There is some concern, because even though it didn't necessarily trigger under what's required under the Omnibus Amendment.

We're still seeing declining trend in multiple indices. Now that we've finished the stock assessment that is why we've continued to try and refine the traffic light for spot; in considering additional metrics, and surveys, and some abundance indices. Since we're going into that next, I think I'll leave it at that and let's go with questions for the traffic light, and then we can talk about the modification that we've been doing.

CHAIRMAN ESTES: Okay, do you want to dispense with the croaker questions, traffic light analysis? Is that all right?

MR. McDONOUGH: Yes.

CHAIRMAN ESTES: Are there questions? Yes, Pat.

MR. PAT GEER: It appears that your harvest indices are relatively, they're going down. But your abundance indices are generally going up, generally. But is there any thought about trying to examine harvest using effort? Because we've

already said that effort is going down. The shrimp effort in my state alone is down about 70 percent in the last 20 years.

If you tried to apply some kind of effort to that harvest, you may see a totally different picture. Whether it be pounds per trip or pounds per license even, or pounds per vessel. But certainly we should be able to get pounds per trip, and examine it as a catch-per-unit effort; so that we're bringing that declining effort into that evaluation.

MR. McDONOUGH: That is just a very good point, because we had discussed that and we had difficulty in the assessment process trying to get some reliable effort estimates. It was basically at the trip level for a lot of it, and that's what we were using in some cases with the shrimp trawl estimates.

But depending on the gear types and everything else, you know effort and even at trip levels. A trip could be a day, a trip could be a week; and so it was too much uncertainty. But it certainly would be something we should continue to look at. But yes that is a really good point.

CHAIRMAN ESTES: Any more questions; yes, Roy?

MR. MILLER: Chris, again in the speculative realm, if I may head in that direction a little bit. With regard to croaker, croaker are an extremely important species in the northern part of the normal range of the croaker; particularly Maryland, Delaware, and New Jersey. They make up a very large component of the summer recreational fishery. In recent years my perception is that fishing has been poor for croaker. The few croaker that have been available have been very small, generally less than the minimum size. That sort of flies in the face of the popular perception of climate change, assuming you ascribe to the philosophy that climate change is real and not fake news.

I would have expected croaker to be expanding the range to the northern part of the range, due

to climate change. But I'm wondering if perhaps the croaker are instead, the larger croaker are moving offshore, hence they're being vulnerable to the NMFS Trawl Surveys, which of course samples the deeper water component than the recreational fishing sector is accustomed to fishing on. I just wondered if instead the croaker are heading offshore, and not heading north.

MR. McDONOUGH: We've actually discussed that and tried teasing that out in the NMFS Trawl Survey data. Since NEMAP has taken over king of the inner strata that the NMFS Trawl Survey used to do, up to 2009. When they switched to the Bigelow and they couldn't go in as shallow, the earlier time series you would see, actually higher abundances in the shallower water; when they were still using the Albatross.

But the deeper strata further out, which is what we use for the NMFS Index; so we can get the full use of that time series. It goes back to 1972. You do see some changes; but there was more variability deeper out, and you don't see consistent changes with like temperature. There has been some work done by John Hare and Ken Able, looking at actually attributed low overwintering temperatures for Atlantic croaker specifically; causing higher mortality or lowering general recruitment in the spring in Mid-Atlantic estuaries.

That has been the only; I think there might be one other one. I think Ken had another study also looking at that. But there just hasn't been much work done on whether or not they're moving out. Then even the NMFS survey only samples, let's see they do sample deeper than the 60 meters, which is that outer strait it goes to.

They do sample deeper than that. But the intercept for croaker at those deeper stations is pretty low; which is why we don't use them. We have gone back and looked, I think two years ago, pulled some of that deeper water data again; to see if there were any changes in croaker coming in. We really didn't see. Your positive intercepts were say 5 to 10 percent or less for

the deeper water. They might move out, and there are certainly years where there are more of them out there. But it's probably something that needs more looking at.

CHAIRMAN ESTES: Yes sir, Chris.

MR. BATSAVAGE: Back in the early 2000s, I think it was 2003, 2004 in the Chesapeake Bay, and there may have been a few other places. There was a die-off of large croaker in the summertime. There were reports of the outgoing tide, dead croaker going out through the Chesapeake Bay, the lower bay.

I actually saw it myself up there fishing during that time period. I'm trying to think back. I believe we saw a truncation in some of the ages, and definitely in the sizes of croaker. I was thinking about the commercial fishery in North Carolina, they haven't seen that larger croaker since then. Has the TC talked about that event and how that has kind of impacted some of the trends we've seen? Because just looking at the traffic light analysis for the commercial landings, things look the best in the late '90s to about the early mid-2000s, and then you start to see red creeping in around 2006. I didn't know if the TC talked about that possibly playing a role in some of the things that we've seen in the traffic light analysis.

MR. McDONOUGH: We did discuss things like the low dissolved oxygen die-offs and things, particularly in the Chesapeake. In the last stock assessment, the 2010 stock assessment, the data we were using in that timeframe, we actually started seeing an expansion of both the age and the size frequency distributions for croaker.

Then for this assessment going up to 2014, it seemed like it started to decrease; and then we started looking at when we incorporated, adding in 2015 and 2016, which of course wasn't part of the stock assessment. We've actually seen a further contraction of the size and age range going back down again; which would certainly support some of that.

But we tried to see if there were any incidents with like the VIMS Index and the other Chesapeake Juvenile Indices in low DO events and that type of thing. There wasn't really a way, at least in the traffic light, we certainly discussed it, but we haven't figured out a way to incorporate it.

CHAIRMAN ESTES: Anything else on croaker? Because both of the triggers, the composite indices, they did not trip, no management action is required. I would suggest, unless there is any objection that the TC does look into incorporating ages and possibly looking at different indices to try to improve the traffic light. Unless there is a big appetite to make changes in light of this, we'll go on to spot. I don't see anybody with a big – we just had lunch. Are there questions about the spot traffic light analysis? Yes, Joe.

MR. CIMINO: I'll start by thanking everyone. I know a lot of work and very thorough. Thanks, Chris, I appreciate this whole presentation. It is eerily, at least for spot eerily like weakfish, and I was in your position when the management board was told something very similar; just look at trends, ignore the assessment for now. I know Jim Gilmore remembers that well too; since we were sitting up there together. I think this is going to be a tough situation for us.

I've got I guess three things, one, I hope that we will continue to see as much information as possible, including ChesMMAAP and NEMAP; even if they're not necessarily incorporated in the TOAs. Two and you guys may need a crystal ball for this, I'm wondering about the TOR of including shrimp trawl into a TOA and what that would look like, what you think it might look like.

Three, since this is a short-lived species and we are seeing this troubling trend in the juvenile index, is it worth updating sooner than five years? I mean would it be something that we should be considering in two to three years; just to see what's going on? That would be the modified assessment.

MR. McDONOUGH: Well, actually your first two points are both directly addressed in the next; I'm talking about the age-partitioning stuff, as far as incorporating. Right now we're looking at incorporating ChesMMAAP right now, not necessarily NEMAP. Then the Shrimp Fishery Index, well we're going to get into it, but basically we're not necessarily recommending that be one of the traffic light triggers in and of itself, but that it be used each year as an advisory index to see, because it's going to gauge a relative impact of removals. In the case of the way the index is calculated with the shrimp fishery.

Typically the abundance and the harvest, higher numbers are considered good, low numbers are considered bad. In the Shrimp Fishery Index it is actually reversed, high numbers of bycatch is really the red proportion and low numbers of bycatch is the green proportion. I'm sorry, what was the third point; the assessment schedule?

MR. CIMINO: Right.

MR. McDONOUGH: I would say at this point that going through the management trigger exercise, if things continue to decline and it's perceived next year, the year after or whatever, and things continue to get worse. Then the Board can certainly initiate an assessment sooner than the five-year timeframe. They always have that at their disposal. I would say we have to see how some of this other stuff goes, but yes we could always do it sooner.

CHAIRMAN ESTES: Any other questions? I would suggest, unless there are objections that we do incorporate those extra information to the traffic light analysis, if the Board is okay directing the TC to investigate that. Okay, I don't see any objections. Now we're at the point where we need to talk about Acceptance of the Spot Stock Assessment and Peer Review. I would be quite happy to listen to a motion. Toni.

MS. KERNS: Jim, since the Peer Review did not recommend using the advice coming out of the assessment for management use, we generally don't actually accept it then; unless the Board

has a different opinion, and then you can consider that.

CHAIRMAN ESTES: Okay. It's up to the Board. Then we could just leave it silent, is that what we would do? Is everyone all right with that? I assume because of that there is probably not an appetite here for a management action either; beings how we didn't trip the triggers. Seeing nothing; I guess we're done with that. Is there any other business to go before the Board? Oh, I'm sorry. Chris is still up. Sorry about that Chris.

MR. McDONOUGH: This is the last one, and you all don't have to listen to me talk anymore. Okay just to cover real quick the age partitioned, kind of looking at this traffic light in a different way. Again, the main issue being the decline in the commercial recreational landings versus what we're seeing in the abundance indices.

Most likely reason being differing size in age classes of fish captured in the different surveys, as well as what is seen in the fishery. We did this looking at using annual-age-length keys applied to the total-length-frequency-distribution data from each dataset, to get expanded numbers at age annually.

Now I'm doing this example I'm showing you is just for croaker. We're doing the same thing for spot, but with the reduced ages. We have age availability; we have a spot we're still kind of teasing that one out. But for croaker the ages were split between the pre-recruits, which is the Ages 0-1, and the recruits, which would be fully recruited to the fishery, which would be Ages 2 plus. Part of the reason for doing this was because it was an overlap, particularly in the fall surveys where you would be catching Age-0s and they would be similar in size range to the Age-1s, and they would kind of confound each other. By combining the 0s and the 1s, it provides for a little better separation in the indices.

We're using the same four fishery independent datasets; NMFS, SEAMAP, as well as North Carolina and VIMS in the commercial and recreational harvest, and then we were also

examining the two other datasets, the ChesMMA Survey as well as running the traffic light with the Shrimp Trawl Fishery Bycatch Estimates.

However, we didn't have size data for the shrimp fishery discards, so that was just run with total landings; since we had no way to separate that out within the age. This is the first time that the shrimp fishery stuff has been run through the traffic light. For our harvest composite with the traffic light, the top one there which is the Age 0-1, showed an increase in recruitment levels observed in the early 1990s and kind of steadily increasing proportions of red, which is that declining harvest of fish in that age range; likely due to a declining recruitment.

Then the bottom figure, the composite traffic light for the Age 2 plus that very closely resembles the general trends seen in the overall landings. That appears that Age 2 plus is really what is driving the harvest component for the traffic light. High landings seen from '96 through 2006, where you get that green in the Age 0-1 pre-recruits, which shows up from 1990-'99.

The persistence of those throughout the fishery could be accounting for those proportions of your green you're seeing in the Age 2 plus from the mid '90s to the early 2000s, as they kind of work their way through the fishery over about eight or ten years. For the fishery independent surveys, and these are mostly broken up, you'll have the non-partitioned one showing you and then the partitioned ones on top with the partitioned ones below it.

That non-partitioned traffic light shows a general increase in the recent years. The Age 0-1 was similar to that non-partitioned traffic light, indicating the overall trend in the catch effort was driven more by Ages 0-1 in that particular index. Then for Ages 2 plus it shows a little bit more of a decline in that older age group that was apparent in recent years; even though you do get a couple of years in the green in 2014 and '15.

The decline that you're seeing, you're seeing a declining trend a little bit in that Age 2 plus, which is kind of what we're seeing in the commercial and recreational. For the SEAMAP Survey, you still see the non-partitioned traffic light matched the higher degree of annual variability seen in the Age 0-1 traffic light; as well as the increase in the trend when you look just at the Ages 0-1 in the traffic light, that center one.

You see much higher proportions of green than you do in the non-partitioned one. Then the magnitude of change in the Ages 2 plus was less than the Age 0-1 traffic light, but it still shows some of those increases in recent years. One difference that is notable in the SEAMAP data compared to the other datasets was it had a younger maximum age of 8 versus 15, 16 in some of the Mid-Atlantic surveys.

It tended to have a narrower annual size range that was consistent across the whole time period; whereas you saw increasing size range in the mid-2000s, and then it declined again in later years in the Mid-Atlantic. SEAMAP just didn't see the larger/older fish that you see in some of the other surveys. Okay ChesMMAAP, one thing with ChesMMAAP is you see there is the catch-per-unit effort, which is the figure on the left, was much more pronounced for Ages 2 plus, particularly you get peak values from 2004 through 2007.

But then the overall trends in the traffic light show the decline for croaker in both Ages 0-1 as well as Age 2, and the catch levels were much higher in ChesMMAAP in the first five years of the survey; whereas since 2008, the catch levels have been extremely low. The traffic light for Ages 0-1 reflected the higher recruitment levels that we're seeing in 2005 to 2007, after which that red proportion was pretty much over 50 percent.

Then the traffic light for Ages 2 plus also showed those peak years early in the survey from 2004 to 2007, and that subsequent decline beginning in 2008 and even basically red proportion levels

at 70 percent or greater. That decline, particularly in ChesMMAAP, matches up pretty well with what is happening with the commercial and recreational landings.

For the Juvenile Composite Index, the Age 0-1 traffic light, if you're just looking at NMFS and SEAMAP, which is that center one, because of the increases seen in that index for those younger ages, you see an even greater proportion of green for those years. Then the combination on that bottom one, using all four of them, reinforced those increases that have occurred since 2011; with higher proportions of green, particularly that SEAMAP and NEMAP kind of bringing those up in those younger fish.

The fishery independent composite characteristic really showed the varying trends, depending on the age group and which indexes were included, and which years were covered; which actually just kind of adds a bit, but we're still working on it but it does add a bit of confusion to it. If we incorporate ChesMMAAP into that; now we're only using 2002 to 2016, because that is the time period for that survey.

You see that the ChesMMAAP data, because of the high proportion of red, particularly in later years, is introduced into the traffic light; and so it offsets a bit of that increase we were seeing in just the larger scale surveys, NMFS, SEAMAP, as well as the local ones in North Carolina and VIMS.

For the Age 2 plus datasets, you see red proportions pretty high throughout the 1990s and early 2000s, and then that increasing trend even a little bit with the green showing up in that top one. Then with the addition of ChesMMAAP, you see those higher red proportions in all years after 2008 that more closely match; again, what we're seeing in those declines in the commercial and recreational traffic light.

The addition of ChesMMAAP brought those red proportions above 30 percent for most years from 2008-2016, except for two years, 2014 and '15, where they were just below 30 percent.



While there was a slight declining trend in the red proportions after 2008, the higher proportions of red from the addition of ChesMMAAP, again ties in better with what we're seeing in the harvest metric.

Then the shrimp fishery discards, as I said there is no length frequency data, so we ran it on the entire survey, just the discard estimates. The discards showed a high peak early in the time series, in the early '90s. The peak was 3.3 billion fish in 1991, and then values have pretty much stayed under 900 million fish per year since then. But the traffic light for using the '96-2008 reference period showed high proportions of red in the beginning of the time series when bycatch levels were fairly high. This also coincides with the timeframe when bycatch-reduction devices were not required, pre 1995-96. Then there were only two years later in the time series that had red proportions greater than 30 percent, which was 2013 and '14.

I mentioned this before answering Joe's question, while the shrimp fishery traffic light gives a good estimate of general removals, it is probably better utilized as an advisory index; looked at every year as part of the trigger management exercise, but not necessarily used in and of itself as one of the actual indexes to decide whether or not management action is warranted, and that goes back to reliability of the estimates for the shrimp fishery estimates.

To sum everything up here, the declines in commercial recreational harvest over the last five, six years have not been necessarily mirrored in the fishery independent abundance indices. The use of the age-partitioned indexes did give us a little better clarification of the trends among the different indices; particularly with the harvest and abundance indices, where you see more declines in those older fish, which is more reflective of what's happening in the commercial and recreational fisheries.

It also helped show us what groups are necessarily maybe driving those traffic light indices as well. The Age 2 plus, what we're

seeing is more of the decline in some of them, whereas the Age 0-1 traffic light is behaving more like the abundance surveys.

Further refinement of the traffic light through age partitioning of the annual index catch-per-unit-effort values, as well as the harvest estimates, could definitely provide better synchrony or agreement between the different traffic light metrics, and hopefully help account for some of the discrepancies that we're seeing between them.

Then as far as the other surveys go, the ChesMMAAP Survey would be a more appropriate addition for the traffic light at this time, because it has a longer time series starting in 2002, and has a great deal of overlap already with the current reference time period; although that would be reevaluated as well.

The NEMAP Survey, while it does provide valuable data on abundance across a wide geographic range, still is a relatively short timeframe; beginning in 2007 it does not cover a complete generation time for croaker, which is 15 years. Then since the Atlantic croaker do make up such a large proportion of the shrimp trawl fishery bycatch, the use of that as an advisory index with the TOA would be useful also. That is something that we will continue to look at, because again this is really preliminary. With that any questions?

CHAIRMAN ESTES: Questions. Chris, thank you for all the work, it looks like you guys were on your computer a god bit, it looks like for the last few months.

#### **ADJOURNMENT**

Thank you very much. Is there any other business before the Board? Seeing none; we are adjourned.

(Whereupon the meeting was adjourned at 2:23 o'clock p.m. on August 1, 2017.)