Atlantic States Marine Fisheries Commission

South Atlantic State/Federal Fisheries Management Board

May 2, 2019
10:15 a.m. – 12:15 p.m.
Arlington, Virginia

Draft Agenda

The times listed are approximate; the order in which these items will be taken is subject to change; other items may be added as necessary.

1.	Welcome/Call to Order (*P. Geer*)	10:15 a.m.
2.	Board Consent • Approval of Agenda • Approval of Proceedings from February 2019	10:15 a.m.
3.	Public Comment	10:20 a.m.
4.	Review and Consider Draft Amendment 1 to the Cobia Fishery Management Plan for Public Comment (*M. Schmidtke*) **Action**	10:30 a.m.
5.	Review State-Gathered Public Input and Consider Potential Management Action for Atlantic Croaker and Spot (*P. Geer*) **Possible Action**	11:30 a.m.
6.	Other Business/Adjourn	12:15 p.m.

The meeting will be held at the Westin Crystal City, 1800 S Eads Street, Arlington, VA 22202; 703.486.1111

MEETING OVERVIEW

South Atlantic State/Federal Fisheries Management Board

Chair: Pat Geer (VA) Assumed Chairmanship: 02/18	Technical Committee (TC) Chairs: Black Drum: Harry Rickabaugh (MD) Cobia: Vacant Atlantic Croaker: Chris McDonough (SC) Red Drum: Vacant	Law Enforcement Committee Representative: Capt. Bob Lynn (GA)
Vice Chair: Robert H. Boyles, Jr.	Advisory Panel Chair: Tom Powers (VA)	Previous Board Meeting: February 6, 2019
Voting Members: NJ, DE, MD, PRFC, VA, NC, SC, GA, FL, NMFS, USFWS, SAFMC (12 votes)		

2. Board Consent

- Approval of Agenda
- Approval of Proceedings from February 6, 2019

3. Public Comment – At the beginning of the meeting public comment will be taken on items not on the agenda. Individuals that wish to speak at this time must sign-in at the beginning of the meeting. For agenda items that have already gone out for public hearing and/or have had a public comment period that has closed, the Board Chair may determine that additional public comment will not provide additional information. In this circumstance the Chair will not allow additional public comment on an issue. For agenda items that the public has not had a chance to provide input, the Board Chair may allow limited opportunity for comment. The Board Chair has the discretion to limit the number of speakers and/or the length of each comment.

4. Draft Amendment 1 to the Cobia Fishery Management Plan (10:30 a.m. – 11:30 p.m.) Action

Background

- In May 2018, the Board initiated Draft Amendment 1 to the Cobia Fishery Management Plan (FMP) to reflect removal of Atlantic cobia from the South Atlantic and Gulf of Mexico Fishery Management Councils' Coastal Migratory Pelagic Resources FMP and establish recommendations for measures in federal waters.
- In October 2018, the Board reviewed public comment on a Public Information Document (PID) and gave direction to the Cobia Plan Development Team (PDT) on options to be included in Draft Amendment 1.
- The PDT has developed Draft Amendment 1, which includes several management options for Board Review for Public Comment (**Briefing Materials**).

Presentations

- Draft Amendment 1 to the Interstate Fishery Management Plan for Atlantic Migratory Group Cobia by M. Schmidtke

Board actions for consideration at this meeting

- Review and consider approval for Draft Amendment 1 to the Cobia FMP to be released for Public Comment.

5. Review State-Gathered Public Input and Consider Potential Management Action for Atlantic Croaker and Spot (11:30 a.m. – 12:15 p.m.) Possible Action

Background

- In 2017, the Board tasked the Atlantic Croaker Technical Committee (TC) and Spot Plan Review Team (PRT) with exploring potential updates to the Traffic Light Analyses (TLA) used to annually evaluate performance of these fisheries, due to conflicting harvest and abundance signals in the current TLAs.
- In February 2018, the Atlantic Croaker TC and Spot PRT provided recommended updates to the TLAs (**Briefing Materials**). Incorporation of all recommended updates would result in management action being triggered for both species.
- In May 2018, the Board populated and tasked the Atlantic Croaker and Spot Plan Development Team (PDT) with exploring potential management responses to the triggers resulting from incorporation of the TLA updates.
- In August 2018, the Atlantic Croaker and Spot PDT provided recommendations that season or trip limits be established for each species (**Briefing Materials**). The Board desired additional public input on measures that would be feasible.
- Several states have gathered public input or conducted in-house analyses to consider potential management responses that could follow incorporation of the TLA updates (**Briefing and Supplemental Materials**).

Presentations

- Summary of Atlantic Croaker and Spot TLA Adjustments and State-Gathered Public Input by M. Schmidtke

Board actions for consideration at this meeting

- Consider potential management action regarding Atlantic croaker and spot TLAs.

6. Other Business/Adjourn

DRAFT PROCEEDINGS OF THE

ATLANTIC STATES MARINE FISHERIES COMMISSION

SOUTH ATLANTIC STATE/FEDERAL FISHERIES MANAGEMENT BOARD

The Westin Crystal City
Arlington, Virginia
February 6, 2019

Draft Proceedings of the South Atlantic State/Federal Fisheries Management Board Meeting
February 2019

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1. **Approval of Agenda** by Consent (Page 1).

2. **Approval of Proceedings of October 2018** by Consent (Page 1).

3. **Move to approve the 2018 Spot FMP Review, State Compliance Reports and de minimis status for New Jersey and Georgia** (Page 10). Motion by Lynn Fegley; second by Malcolm Rhodes. Motion carried (Page 10).

4. **Motion to adjourn** by Consent (Page 10).

Draft Proceedings of the South Atlantic State/Federal Fisheries Management Board Meeting
February 2019

ATTENDANCE

BOARD MEMBERS

Emerson Hasbrouck, NY (GA)
Adam Nowalsky, NJ, proxy for Asm. Andrzejczak (LA)
Heather Corbett, NJ, proxy for L. Herrighty (AA)
Russ Allen, NJ, proxy for T. Fote (GA)
John Clark, DE, proxy for David Saveikas (AA)
Roy Miller, DE (GA)
Craig Pugh, DE, proxy for Rep. Carson (LA)
Russell Dize, MD (GA)
David Blazer, MD (AA)
Lynn Fegley, MD, Administrative proxy
Pat Geer, VA, proxy for S. Bowman (AA), Chair
Bryan Plumlee, VA (GA)
Steve Murphey, NC (AA)
Chris Batsavage, NC, Administrative proxy
Mike Blanton, NC, proxy for Sen. Steinberg (LA)
Malcolm Rhodes, SC (GA)
Spud Woodward, GA (AA)
Doug Haymans, GA (GA)
Jim Estes, FL, proxy for J. McCawley (AA)
Marty Gary, PRFC
John Carmichael, SAFMC

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

Ex-Officio Members

Staff

Toni Kerns
Robert Beal
Mike Schmidtke
Caitlin Starks
Jessica Kuesel

Guests

Joe Cimino, NJ DEP
Justin Davis, CT (AA)
Jeff Deem, VMRC
Phil Edwards, RI DEM
Zach Greenberg, PEW Trusts
Bill Hyatt, CT (GA)
Raymond Kane, MA (GA)
Arnold Leo, E. Hampton, NY
Chip Lynch, NOAA
Nichola Meserve, MA DMF
Mike Millard, USFWS
Rob O'Reilly, VMRC
Derek Orner, NOAA
Cheri Patterson, NH F&G
Ken Sprankle, USFWS
Mike Thalhauser, MCCF
Jack Travelstead, CCA

The South Atlantic State/Federal Fisheries Management Board of the Atlantic States Marine Fisheries Commission convened in the Jefferson Ballroom of the Westin Crystal City Hotel, Arlington, Virginia; Wednesday, February 6, 2019, and was called to order at 11:15 o'clock a.m. by Chairman Pat Geer.

CALL TO ORDER

CHAIRMAN PAT GEER: Welcome to the South Atlantic State/Federal Fisheries Management Board. My name is Pat Geer; I'm from Virginia, I'm the Chairman. I welcome you all here today. The first order of business today is approval of the agenda. Are there any changes to the agenda; any modifications? Hearing none; the agenda is approved by consent.

APPROVAL OF PROCEEDINGS

CHAIRMAN GEER: Moving on to the proceedings from the October annual meeting, are there any changes or additions to them? Hearing none; it's approved by consent. We don't have anybody signed up for public comment. Is there anybody in the audience that wants to comment on anything that is not on the agenda today?

DRAFT AMENDMENT 1 FOR THE COBIA FISHERIES MANAGEMENT PLAN

CHAIRMAN GEER: Hearing none; we'll move on. The next item on the agenda is the Draft Amendment 1 for the Cobia Fisheries Management Plan. Mike is going to give us a progress update**;** as well as talk about giving us some guidance on the Plan Development, as far as it's concerned with some of the options we have, so Mike you have the floor.

PROGRESS UPDATE

DR. MIKE SCHMIDTKE: Today I'll be talking about kind of the progress made on Draft Amendment 1; as well as some additional guidance that is necessary for the Plan Development Team to proceed forward in the development of that draft. Before I get into the draft amendment, I do want update the Board on the SEDAR 58 assessment process for Atlantic cobia. The data workshop was previously scheduled to take place in Charleston in mid-January.

However, due to the federal government shutdown that workshop was postponed. The most recent information I have is that the SEDAR Steering Committee will have a conference call to reschedule the dates for that workshop; as well as any other assessments that were affected by it. Once I get information from that call I'll distribute it to the Board. Currently I don't have the reschedule dates for that workshop. I guess before I get into the amendment, are there any questions concerning the assessment and the progress there?

MR. JOHN CARMICHAEL: Yes, John Carmichael. It will actually be a planning group not the Steering Committee that does that. But the Science Center did initial planning last week; and the reports we're getting back from the coordinators who have been working with the projects leads is it sounds like they can pick that up pretty quick. We're not expecting an excessive delay; and hoping that we can have the workshop sometime in maybe late March or April. I hope there won't be too much of a delay.

DR. SCHMIDTKE: Thank you, John. Now getting into the Draft Amendment, first I'll go through a brief review of the process to this point. Draft Amendment 1 to the Interstate Management Plan was initiated in May of last year. This amendment is necessary to replace the current language that is dependent on the Council's Coastal Migratory Pelagics FMP; as well as reflect the removal of Atlantic cobia from that FMP via Amendment 31.

Additionally, the Board expressed a desire to consider management strategies other than those that are currently in place through the Complementary Plan. A Public Information Document was published last year; and distributed to gather input on options for the draft Amendment. Public comments were received through hearings and e-mails; and they were summarized for the Board last October,

when the Board gave some initial guidance for the Cobia Plan Development Team**.**

The draft Amendment was tasked to be designed to address two main issues; recommended management for federal waters and establishment of a harvest specification process. This is a reminder of the current timeline for the amendment. Fortunately, this amendment has not really been impacted by the federal shutdown; so the PDT has been able to move on discussions for developing the document.

We are still planning to have the draft amendment available for Board consideration for public comment in May; with a potential final approval during this year's August meeting. The PDT has held two conference calls earlier this month; to begin developing preliminary options for several measures addressed by the draft amendment.

However, the group decided that additional guidance on accountability options was necessary to move forward; as current accountability measures have some dependency on how the landings are evaluated against targets or quotas. Decisions concerning accountability could impact options for other measures as well.

Accountability is being considered in this draft amendment; because it is included in status quo measures. During previous discussions some states had expressed concern about inequitable access. That is what led to Commission involvement in this stock in the first place; and additionally because some questions have been asked concerning the health of the stock, due to recent ACL overages in both sectors.

The Commission's guiding documents do not require accountability measures in a plan; however, removal of accountability measures would divert from the status quo for this particular FMP. If this is desired for either sector that would have to be considered along with status quo; as one of multiple options for this draft amendment.

Here I'll summarize the status quo accountability measures. On the recreational side accountability is applied at the state level for non de minimis states. If a state's average harvest over a three year period exceeds its annual harvest target that state must reduce its season or vessel limit; such that the target may be achieved in the next three year period. For the commercial fishery accountability is applied through a coastwide closure. NOAA Fisheries monitors commercial harvest and projects when the commercial ACL will be met. When the ACL is projected to be met, both federal and state waters are closed to commercial fishing for the remainder of the year.

An additional accountability measure in effect from the coastal migratory pelagics FMP is that payback would be applied annually; based on ACL overages, if the total ACL (meaning the combined ACL of recreational and commercial sectors), if that is exceeded while the stock is under an overfished status.

We've had some overages in recent years; but there has been no payback, because the stock is not currently overfished, according to the last assessment. Payback would be applied according to those sector-specific overages. Unless both of the conditions are met of an overage and an overfished status, payback is not applied and the ACL resets each year.

This measure is not in the interstate FMP, and could not be carried over as a status quo measure. However, because it is conditional on overfished status, if the Board does desire this type of measure as an option; that could be considered outside of the status quo measures that get carried forward in place that are under a regular not overfished status.

Status quo could be maintained for the recreational fishery by simply adapting some terminology. We would not have an ACL any longer; we would define independently the RHL and redefine a few other terms as well. Some preliminary options explore the RHL specification process; and the landings

evaluation process, and look at these for time periods other than three years.

But these could be addressed separately without impacting the management response to an overage. That response is a state level reduction to the state harvest target. However, carrying forward status quo could be a bit more difficult to implement for the commercial fishery. Under and adapted status quo scenario, states would be responsible for the monitoring and closure for landings in their state.

They would have to keep track of when the annual quota is met; and issue the closure within the states. Given the difficulties with keeping the landings under the ACL under federal monitoring and closure, a key question is do states believe they would have ability to monitor their landings and enforce a timely closure if the coastwide quota were met?

Another note for consideration is that most Commission FMPs, which are not required to use payback methods, typically have payback procedures in place for commercial fisheries but not for recreational. In summary, some aspects of status quo accountability could be adapted and carried forward, without needing to develop alternative accountability options.

However, there are some caveats to doing that; particularly for the commercial fishery. The first question that the PDT would need addressed to move forward is; does the Board want to include accountability options other than the status quo in this draft amendment? At this point if it pleases the Chair, I would ask for Board feedback on this question. There are a couple follow up questions; depending on the response that the Board gives at this time.

PROVIDE GUIDANCE TO PLAN DEVELOPMENT TEAM TO DEVELOP MANAGEMENT OPTIONS

CHAIRMAN GEER: I want to open the floor for discussion on this. Are there any comments? I see Malcolm and I see Joe.

DR. MALCOLM RHODES: If we could monitor the status quo it could work. I know in our state we would have an issue with the federal water closures; and I think Georgia the same way, because that is where our fisheries take place for the most part. Any state waters we close for the breeding stock; and Robert's talked about that at length.

I don't know if our state could. I don't know that's just an issue that we would have to work out; if we stuck with the status quo along that line. I don't have a specific recommendation; but it's something that we just need to consider as we go forward.

CHAIRMAN GEER: Joe.

MR. JOE CIMINO: Thanks, Mike for laying all this out for us. You know I think it was a big step forward when we got to this idea of this three year period for the recreational fishery. I would really like to see that play out. I think something needs to be done with the commercial fishery. I just wonder who that kind of falls to for tracking overall as a coast.

I believe there were times where even ASMFC staff was involved with tracking dogfish when Council and Commission had different, and I wouldn't want to see it go that way. I had some concerns about this commercial fishery. I think that a lot of fish still go unreported; so it's a fishery that's already exceeding its ACL, and yet I still think there are fish that are ending up in restaurants that aren't even on that quota. I think it's a difficult one to track in real time for any state. Then well, I'll leave it at that.

CHAIRMAN GEER: All of it, Malcolm; anyone else? Lynn.

MS. LYNN FEGLEY: I just wanted to make sure that I understand. If we go forward with the inclusion of accountability measures, if there are options in there that would require states to track their state-specific landings, you know for those of us who's harvest is very low, we're de minimis in these.

I'm just wondering if there is going to be some specific language in the plan that would specify how de minimis states would need to deal with those accountability measures. Would we be equally responsible? I'm just wondering. We probably need to think through how that works a little bit.

DR. SCHMIDTKE: With the way that the Plan is now, there is a coastwide quota. It's not divvied up by states at all. De minimis or non, it doesn't really matter when it comes to the commercial fishery. All of that goes into evaluating the landings against that coastwide quota. Unless there are adjustments made to that; then the de minimis states, which are essentially de minimis for the recreational fishery, would also have to be incorporated in that monitoring effort.

CHAIRMAN GEER: Follow up, Lynn?

MS. FEGLEY: Yes, thank you for that. Just to be clear, you know the way that we went forward in a complementary way with the Federal Plan, I think worked really well for us. But if we're going to deviate from the status quo, I just want to make sure we think it through.

CHAIRMAN GEER: Next I have Chris.

MR. CHRIS BATSAVAGE: Thinking about how to monitor the commercial fishery. It's really two states landing the majority of the commercial cobia. In terms of how to handle the de minimis states, I think with the recreational fishery when we allocate it to the states, it was 99 percent of that RHL and then 1 percent covered the de minimis states.

I don't know if that's something that we could do for the commercial fishery if we go to either of the states, Virginia, North Carolina in this case, monitoring the quota or another entity that it's at like a 99 percent or even less of that level to account for overages, but also account for the de minimis states so they're not having to try to track down just very sporadic commercial landings that may or may not occur in their states.

CHAIRMAN GEER: Anyone else? We have to make a decision whether or not, first of all if we want accountability measures, and if we do, if we want to stay with our status quo or do we have any other ideas? What's the pleasure of the Board? Joe.

MR. CIMINO: I support Chris's notion; and maybe if we could actually task the TC to look at the coastwide landings for the past few years, and get an idea if it would be a 1 percent set-aside, or what an appropriate number would be. Then kind of move forward with that for the commercial. Again, I'm going with support for status quo for the recreational.

CHAIRMAN GEER: Chris is correct; I mean it's basically Virginia and North Carolina that make up the large bulk of the commercial landings. We both have quota systems in effect that can track the landings; whether or not we're getting it all. But we do have a tracking system. We could put something into play where we start to look at it when it reaches some certain percentage; and deal with the season that way.

DR. SCHMIDTKE: I think we can just incorporate that into the PDT process. We don't have to have a separate TC task for it; just have that as part of the option development for the PDT.

CHAIRMAN GEER: I'm not hearing any objections to not having accountability measures. I have a few people in support of them. Hearing none; we're all in consensus that we want the accountability measures to move forward? That's with status quo. If you want any others added, any other thoughts. I'm not hearing much, tough crowd. Roy.

MR. ROY W. MILLER: Mr. Chairman, in your statement, are we assuming status quo is the preferred option?

CHAIRMAN GEER: If we have no other options. It's a plan right now; so if there is anything else, any thoughts or ideas anybody has, bring them forth now. Spud.

MR. A. G. SPUD WOODWARD: I think it will help the PDT if we can at least address this payback issue now as a group. Do we want paybacks to even be considered a component of the accountability measures or not? I for one think in the recreational sector no, just my opinion.

CHAIRMAN GEER: Anyone else on that? Mike has something.

DR. SCHMIDTKE: Spud, just to be clear; that would include under an overfished status, still no payback at all for the recreational, correct? Okay.

CHAIRMAN GEER: What does everyone think about that? Lynn.

MS. FEGLEY: Okay, so if we're in an overfished status we would have a payback for the commercial sector but not the recreational sector; is that correct? Is that how that works?

CHAIRMAN GEER: I believe that's what Spud was proposing. Is that what you were proposing, Spud?

MR. WOODWARD: Well I'm not necessarily proposing a payback for the commercial sector; just making sure that I don't want us to get into a situation where we do it in the recreational sector. I think if we were to go with something like status quo. In essence if you have to truncate your season or make other adjustments the year after you sort of reached the threshold; that is a de facto payback, if you get really down to it, just without enumerating the fish, per say.

But, the commercial fishery is so small and is unlikely to grow under the restrictions that are there already. I don't know that we need to bog down too much in that. I mean if you've got the only two states are the principal players in it can control the harvest through the quota monitoring system and in-season closures. I mean, what's the likelihood of us getting into a situation where a payback is really necessary?

CHAIRMAN GEER: Well, we've gone over every year since there has been an ACL.

MR. WOODWARD: By what percentage, what margin?

CHAIRMAN GEER: It varies. As you said, relative to the recreational fishery it's tiny. I mean landings have been I think there was 67,000 pounds last year. It is going over by 20 percent. But it's still a very small portion of the overall harvest. Lynn has her hand half up.

MS. FEGLEY: Thank you, Mr. Chair for your patience. I guess my thought is just in terms of equity. Something just niggles at me that we would put an option in for payback for one sector but not the other. With the commercial fishery maybe being so small; maybe the commercial fishery winds up in the same place that the recreational fishery does, where if the commercial fishery is exceeding its ACL, if it exceeds then the states need to adjust somehow their commercial fisheries. I know we're all on a standard regulation right now; and the feds have been monitoring it and closing the season when NOAA has calculated that the quota is caught. But maybe we just need to keep the recreational and the commercial on an even plane. If the commercial sector is exceeding, then the states need to figure out how to adjust their landings accordingly.

CHAIRMAN GEER: Joe.

MR. CIMINO: I support that. I have a question maybe for Mike or staff. Do we know in this plan, can you request de minimis for just a sector? Because I think if other states could request it just for commercial, it might give us more options on how to manage the commercial fishery.

DR. SCHMIDTKE: Joe, are you asking could we change the de minimis; I guess the way the de minimis is defined? Because right now it is defined that it only really effectively applies for the recreational sector; but incorporating the commercial sector into de minimis qualification

and status. That is something that could be incorporated into the amendment, yes.

CHAIRMAN GEER: Toni.

MS. TONI KERNS: I just have a question for the states; because I thought we said on the PDT call that the states don't timely monitor the quota enough for in-season closures. For the states that have commercial fisheries is there timely enough monitoring with this pulse fishery that it is; to actually have a closure when we reach or get close to the commercial quota?

Like could we set up for triggers in order to reduce catch some; if you don't want to do full closures, so that harvest then starts to drop off, so you don't have such large percent overages? Some measure; because right now I don't think we're timely monitoring in order to have an accountability measure.

CHAIRMAN GEER: Virginia tracks the landings.

MS. KERNS: Timely? How often do you get your landings for this; monthly, weekly?

CHAIRMAN GEER: No, it's at least weekly if not daily. North Carolina, they have a call-in system as well, right?

MR. BATSAVAGE: Yes thanks. We have a quota monitoring system for some of our other commercial fisheries. We would have to go and talk to staff; as far as how we would handle cobia, being a much smaller quota. But we do have a mechanism in place to track landings on a more frequent basis than the typical get the trip tickets a month later, and then see where you are.

But yes, I think it's something that we could potentially do; we just need to work out the details with our staff, to figure out the best way. I think in terms of just the commercial landings information; having the PDT look at when those landings occur during the month, and seasonal landings and what not. That would help us too; as far as trying to get a sense of the frequency. You know if it's all happening in a couple months; or if it's spread out over the year, or somewhere in between. I think that would help us; as far as whether we need to do daily reporting, weekly reporting, things like that.

CHAIRMAN GEER: Mike's writing down a lot of things here. One of the things was separating out de minimis for recreational and commercial; considering not having payback for recreational fisheries or commercial. Is there anything else or any comments on those issues that we just discussed? Not hearing any. Is there anything else you want the PDT to look at or the TC; as far as information you want going into the Plan as a possible option? Boy, I'm not hearing anything. Mike is doing a wonderful job, isn't he? Mike.

DR. SCHMIDTKE: Just to make sure we're clear going forward. All the feedback that has been given today could be accomplished essentially with status quo accountability measures. Again like I said, the payback provision is from the coastal migratory pelagics FMP; that is not part of the interstate FMP.

We would just not add it. That would be fine to have status quo going forward; which would mean that there would not be accountability options in the draft amendment. That would just be a carryover from the previous management plan. We would be able to look at some details like the timing of the period and things like that outside of those measures. But I just wanted to make sure that the Board was clear that that is what we would have going forward.

CHAIRMAN GEER: I see a few heads shaking yes. Anything else, Mike do you have what you need at this time? Okay. Thanks for that discussion. Several of us sit on the PDT as well; so we'll be having some more conference calls about this as we continue to develop the amendment. Do you have a question, Toni?

MS. KERNS: Is it the intention of the Board for the commercial fishery to close in-season when the quota is caught? Is that what the Board is looking for; to clarify?

CHAIRMAN GEER: Chris is nodding his head and so am I.

MS. KERNS: Okay.

CHAIRMAN GEER: Yes. Is there anything else? All right moving on, oh I've got another question. Joe.

MR. CIMINO: Is that a state-by-state closure? If North Carolina and Virginia are going over, would they expect all states to be able to respond quickly enough to?

MS. KERNS: I think it depends on how you set up the quota in the document. If you're going to have a state-by-state commercial quota, then it would be each individual state would close when you set that up. But if you don't have state-by-state quotas, which I don't believe we do right now. Then it would just be when the commercial quota is caught in total; and everybody would close.

CHAIRMAN GEER: But if we had that 1 percent or 2 percent set-aside; we may be able to address it through that.

MS. KERNS: The de minimis states would also have to, everybody would have to close once the commercial quota is caught, usually.

CHAIRMAN GEER: Right. Okay.
MS. KERNS: I mean you can write it any way you want that's true. You can change it, but typically that's what happens.

CHAIRMAN GEER: I have Lynn and then Joe.

MR. CIMINO: I think I would like to consider maybe through the Plan, something where there was like a 1 percent set-aside for de minimis. You know we had a public hearing in New Jersey, and one individual showed, he was a commercial fishermen, large-mesh gillnets. He doesn't target cobia; but his one concern is the closures impact his fishery. I know North Carolina has this issue with king mackerel. I know I've said it before, but I'm always in favor or turning dead discards into something more reasonable. I know for at least my state, if de minimis was running on a 1 percent set-aside; I would be able to turn those discards into non-targeted harvest.

CHAIRMAN GEER: Lynn.

MS. FEGLEY: I think I am right on the same wavelength with Joe. In our state, because we have so few of these fish, we cannot monitor state-by-state quota. We are not equipped to do that for this fish. Some sort of set-aside I think, would work well for the commercial fishery. If push came to shove, I don't think it would be ideal, because I'm assuming the majority of the commercial landings are coming out of North Carolina and Virginia.

You know they would be our bell weather. If they are in the position to track their quota then close, then you know we could follow suit. We're set up right now to follow Virginia's regulations recreationally to keep us consistent. We could walk down that same road commercially as well; although you know as Joe said, I think if there is a way to treat these little states a little differently that would be ideal.

CHAIRMAN GEER: Roy.

MR. MILLER: I would support that thought process as well; because there is a cost associated with implementing regulations. If a commercial closure is required, and you have a state that landings are so incidental or occasional that you don't even have landings greater than zero in most years. The administrative cost of closing that fishery just doesn't seem worth it. I like the idea of a 1 percent set-aside, thanks.

CHAIRMAN GEER: That is a good idea. Malcolm.

DR. RHODES: Just to be clear about this. If there were a federal closure or a commercial closure in the federal waters, would the wording apply just to commercial, or recreational only? Speaking

for my own state, cobia is game fish, so we have no commercial fishery period. But as stated earlier, our fishery is 90 percent prosecuted in federal waters.

If the federal waters were closed, by mandate our recreational season is closed. That is what happened for several years. Is there a way to disconnect commercial and recreational in the Plan that's coming up? Would federal water closure be federal water closure period; or would it just be federal for commercial harvest?

DR. SCHMIDTKE: One of the parts of this draft amendment is addressing the recommended federal regulations relative to the state. There are options in place, like one of them being if you're fishing by your state of landing, even though you're in federal waters you adhere to the regulations of the state of landings. I believe that NOAA Fisheries has indicated that they would essentially reflect those regulations in enforcement. There wouldn't necessarily be a federal closure; unless it was mirroring a state closure.

CHAIRMAN GEER: Toni.

MS. KERNS: To clarify. The closure would be for commercial fishing, Malcolm, for all states to close their commercial fishery. If you don't have a commercial fishery then you wouldn't have to worry about it. If we made that recommendation to want to extend it out to federal waters, it would be just a closure of commercial fishing in federal waters.

DR. RHODES: Understood; but I just wanted to be clear, the way our laws are mandated that if the federal waters are closed then the fishery is closed to everybody. I don't know, maybe we just need to make sure about the wording of it either in this, and we can talk about it later, or within our state. Is that how you understand it, John?

MR. CARMICHAEL: I think that's how it's worded now. What I was trying to think about is if all the states closed there is nowhere to land. Then with the federal waters being opened or closed it would kind of be moot. But then I think there are also situations where once all the states that have, in cases where you've divided them up, once all the states that have a piece have all closed, then I think in some cases the feds close. But my recollection a lot of times that comes down to what the Commission does; in terms of asking the feds to take action. I think you have the ability to do it either way you wish to do it.

CHAIRMAN GEER: Malcolm, are you okay with that?

DR. RHODES: Yes I'm clear with this; and we'll be able to discuss it some, and then we'll have the document in May. I just want to make sure we don't get inadvertently closed out of the fishery; because of the way our laws are written, with the mirroring of federal law.

CHAIRMAN GEER: Is there anything else? I'm going to have a long pause here; so everyone can think for a second and then move on. Mike, did we cover everything? All right well thanks for that discussion. Like I said, the PDT will be working; and we'll be back with this in May.

CONSIDERATION OF THE FMP REVIEW AND STATE COMPLIANCE REPORTS FOR SPOT

CHAIRMAN GEER: Moving on to the next agenda item, which is Consideration of the FMP Review and State Compliance Reports for spot**.** Mike.

DR. SCHMIDTKE: This is the 2018 FMP Review for spot. We get those compliance reports a little bit later in the year, so we're going to be looking at the 2017 fishing year. As a reminder, in July of last year MRIP did their recalibration of recreational harvest estimates from the Coastal Household Telephone Survey to the mail-based Fishing Effort Survey.

Here we see time series of the recreational harvest using each of the different calibrations; and in general spot increased by about double, but it's fairly proportional for those recreational landings. As this species does not have any

regulations based on the weight or the number of the recreational harvest, the estimates that are presented today will use those new FES numbers.

Here we see commercial harvest in black and recreational harvest in gray from 1950 to the present. Total landings of spot in 2017 are estimated at ten million pounds; an increase of about six million pounds from 2016, and 317,000 pounds less than the average of the last ten years. The commercial fishery accounted for 24 percent of these landings; with 2.4 million pounds, that's a 277 percent increase from the time series low in 2016.

Virginia landed approximately 74 percent of the commercial harvest; followed by North Carolina with 18 percent. Here we see recreational catch in millions of fish. The black bars are the fish harvested, and gray bars are those that were caught and released. Recreational harvest of spot along the Atlantic Coast has varied throughout the time series; between 13 and 55 million fish.

In 2017 recreational harvest was 23.7 million fish or 10 million pounds. This is about 10 million fish more than the 2016 harvest. Anglers in Virginia caught 67 percent of the 2017 harvest; followed by anglers in Maryland and North Carolina. The estimated number of spot released by recreational anglers in 2017 was about eight million fish; and that's about a 2.5 million decrease from the 2016 releases.

Addendum I established the use of a traffic light analysis to monitor stock status in the absence of an assessment. It set a threshold of 30 percent, which is shown by the black line that represents moderate concern for the fishery. If thresholds for both the harvest and abundance indices are exceeded over a two year period then management action is tripped.

The results shown here and on the next slide are the current TLA; and they do not include adjustments that were recently recommended by the Atlantic Croaker TC and Spot PRT. This graph shows the Composite Harvest Index, which is comprised of commercial and recreational data from the entire coast.

This index has shown recent decline; and did trip in 2017 with red proportions in 2016 and '17, both exceeding 30 percent. Here we see the composite abundance index; which is comprised of adult spot abundance estimated by the NMFS and SEAMAP surveys. This index has shown some sporadic declines; but nothing consistent, and it did not trip in 2017. The 2017 percent red is just under 30 at 29.4 percent; so despite the triggering of the harvest index, management action is not triggered this year and would not be triggered next year, as you need two consecutive years to trigger management. Spot are currently managed under the Omnibus Amendment approved in 2011. This amendment does not require a specific fishery management measures in either the recreational or commercial fisheries for states within the management unit. A state qualifies for de minimis status if its past three-year average of the combined commercial and recreational catch, is less than 1 percent of the past three-year average for the coastwide commercial and recreational catch.

Those states that qualify for de minimis are not required to implement any monitoring requirements; and there aren't any monitoring requirements to include for this plan. New Jersey and Georgia have both requested and qualified for de minimis status. The PRT recommends that the Board approve the 2018 Spot FMP Review, State Compliance Reports, and de minimis status for New Jersey and Georgia.

In addition the PRT has listed several management research and monitoring recommendations in the FMP Review Report. Specifically the PRT would like to reiterate their recommendation that the Board consider incorporation of adjustments to the TLA. These were submitted in their collaborative memo with the Atlantic Croaker TC.

As I understand states have been working to get public feedback on potential management responses since incorporating the recommended adjustments would trigger management action. That information was not available for all states in time for this meeting; so the plan is for the Board to address that issue in May. With that I will take any questions.

CHAIRMAN GEER: Are there any questions for Mike? I believe so far Maryland and Virginia have had their public meeting; North Carolina is slated this month. Are any other states considering having a meeting to discuss possible croaker/spot management? I'm just seeing shaking of heads.

Okay well that is where the bulk of the catch is. Lynn, Chris and I have had several conversations about this. I think we're all kind of on the same page. We'll be able to provide some of the results of those meetings next meeting. We need a motion on this. Lynn.

MS. FEGLEY: I move to approve the 2018 Spot FMP Review, State Compliance Reports and de minimis status for New Jersey and Georgia.

CHAIRMAN GEER: Seconded by Malcolm. Is there any further discussion; any opposition? Hearing none; it's approved by consent. Is there anything else to come? Oh, I have to read it, I'm sorry I forgot to read it, forgive me. Move to approve the 2018 Spot FMP Review, State Compliance Reports and de minimis status for New Jersey and Georgia.

Motion by Ms. Fegley, and seconded by Dr. Rhodes. Hearing any opposition to the motion? Hearing none; the motion is accepted by consent. I apologize for that. Is there any other business to come before this Board today? Malcolm.

DR. RHODES: Mike and Lynn and I were talking earlier; and I just wanted to clear in my head. It's SEDAR 28 for cobia will be like a year, is that right?

DR. SCHMIDTKE: It's 58, and that is projected to be finished by the end of this calendar year. The original final report date was in October; so even with the shutdown if it gets moved a month or so that information wouldn't have been available until our February meeting anyway. As long as we get it done by beginning of January, then we should still be on track to have that available in February or next year.

ADJOURNMENT

CHAIRMAN GEER: Is there anything else? Hearing none; motion to adjourn, Malcolm, and seconded by I thought I saw a couple of hands over here. I'll say Lynn. Meeting is adjourned.

(Whereupon the meeting adjourned at 12:00 o'clock p.m. on February 6, 2019)

Atlantic States Marine Fisheries Commission

Draft Amendment 1 to the Interstate Fishery Management Plan for Atlantic Migratory Group Cobia

Sustainably Managing Atlantic Coastal Fisheries

May 2019

DRAFT DOCUMENT FOR BOARD DISCUSSION; NOT FOR PUBLIC COMMENT

Amendment 1 to the Interstate Fishery Management Plan for Atlantic Migratory Group Cobia

Prepared by

Atlantic States Marine Fisheries Commission
Cobia Plan Development Team

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This is a report of the Atlantic States Marine Fisheries Commission pursuant to U.S. Department of Commerce, National Oceanic and Atmospheric Administration Award No. NA15NMF4740069.

The Atlantic States Marine Fisheries Commission seeks your input on Draft Amendment 1 to the Atlantic Cobia Fishery Management Plan.

The public is encouraged to submit comments regarding this document during the public comment period. Comments must be received by **5:00 PM (EST) on XXXXX.** Regardless of when they were sent, comments received after that time will not be included in the official record. The South Atlantic State/Federal Fisheries Management Board will consider public comment on this document before finalizing Amendment 1.

You may submit public comment by attending a public hearing held in your state or jurisdiction or mailing, faxing, or emailing written comments to the address below. Comments can also be referred to your state's members on the South Atlantic State/Federal Fisheries Management Board or Advisory Panel; however, only comments received at a public hearing or written comments submitted to the Commission will become part of the public comment record.

Mail: Dr. Michael Schmidtke
Atlantic States Marine Fisheries Commission
1050 N. Highland Street, Suite 200 A-N
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Email: comments@asmfc.org
(Subject: Cobia Amend 1)
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If your organization is planning to release an action alert in response to Draft Amendment 1, or if you have questions, please contact Dr. Michael Schmidtke, Fishery Management Plan Coordinator, at 703.842.0740.

The process and current timeline for completion of Amendment 1 is as follows:

Step	**Anticipated Date**
Approval of Draft PID by the Board	Aug 2018
Public review and comment on PID	Aug – Oct 2018
Board review of public comment; Board direction on what to include in Draft Amendment 1	Oct 2018
Preparation of Draft Amendment 1	Oct 2018 – May 2019
Review and approval of Draft Amendment 1 by Board for public comment ***Current step***	May 2019
Public review and comment on Draft Amendment 1	May – Aug 2019
Board review of public comment on Draft Amendment 1	Aug 2019
Review and approval of the final Amendment 1 by the Board, Policy Board and Commission	Aug 2019

Table of Contents

1.0 INTRODUCTION

The Atlantic States Marine Fisheries Commission (Commission), under the authority of the Atlantic Coastal Fisheries Cooperative Management Act (ACFCMA), is responsible for managing the Atlantic Migratory Group of cobia (Atlantic cobia) (*Rachycentron canadum)* from Georgia through New York. The Commission has coordinated the interstate management of Atlantic cobia in state waters (0-3 miles) since 2017. Amendment 1 to the Interstate Fishery Management Plan for Atlantic Migratory Group Cobia (FMP) establishes management measures that transition the FMP from complementary management with the South Atlantic and Gulf of Mexico Fishery Management Councils' (SAFMC and GMFMC, respectively) Fishery Management Plan for Coastal Migratory Pelagic Resources in the Gulf of Mexico and Atlantic Region (CMP FMP) to sole management by the Commission. Amendment 1 to the FMP was initiated in response to Regulatory Amendment 31 to the CMP FMP, which removes Atlantic cobia from the CMP FMP. Management authority in the exclusive economic zone (3-200 miles from shore) lies with the National Oceanic and Atmospheric Administration's (NOAA) National Marine Fisheries Service (NOAA Fisheries), but the Commission, through the ACFCMA, is able to recommend management measures in this area for implementation by NOAA Fisheries.

Updates from the FMP have been made to introductory sections to reflect the most up-to-date information about the Atlantic cobia fishery.

1.1 BACKGROUND INFORMATION

At their May 2018 meeting, the South Atlantic State/Federal Fisheries Management Board (Board) initiated the development of Amendment 1 to the Cobia FMP to establish recommended management for Atlantic cobia in federal waters and a process by which aspects of harvest regulations may be specified through a Board vote. The Board approved the Amendment 1 Public Information Document for public comment in August 2018. Public comment was received and hearings were held between August 2018 and October 2018. At their October 2018 meeting, the Board tasked the Plan Development Team (PDT) with developing Draft Amendment 1.

1.1.1 Statement of Problem

1.1.1.1 Recommended Management for Federal Waters

In June 2018, the SAFMC and GMFMC approved Regulatory Amendment 31 to the CMP FMP, which would remove Atlantic cobia from the CMP FMP (SAFMC, 2018a). This removal was approved and became effective on March 21, 2019. Therefore, the SAFMC no longer manages Atlantic cobia, and the Commission has sole management authority for this stock. The SAFMC is the management body that previously recommended the annual catch limit (ACL) and other measures used by NOAA Fisheries to manage federal waters. Additionally, the Recreational Harvest Limit (RHL) from the FMP is currently dependent on the federal ACL, and state commercial fisheries are required to close if a federal closure occurs due to the commercial ACL

being met. To accommodate the SAFMC's and GMFMC's action to remove Atlantic cobia from the CMP FMP, the Commission is working to establish a mechanism for recommending management measures to NOAA Fisheries for implementation in federal waters, through authority and process defined in the ACFCMA.

1.1.1.2 Harvest Specification Process

Recent concerns for the Atlantic cobia fishery include multiple overages of the commercial and recreational ACLs, early fishing season closures due to the ACLs being met or exceeded, and in-season evaluation of recreational harvest estimates from the Marine Recreational Information Program (MRIP) against the recreational ACL. Recent ACL overages have caused concern among managers about the status of this stock, which was last assessed in 2013 (Southeast Data, Assessment, and Review [SEDAR], 2013). Additionally, the recent transition of MRIP from estimating effort through the Coastal Household Telephone Survey to the current, mail-based Fishing Effort Survey in 2018 required a re-calibration of previous recreational effort and harvest estimates. The change in harvest estimates is likely to impact stock assessment results. Thus, assessments must be conducted to update biological reference points and better inform future management for species impacted by the re-calibration, including cobia. A stock assessment is currently being conducted for Atlantic cobia through the SEDAR process (SEDAR 58). Assessment results are anticipated to be available for management use early in 2020.

In order to quickly respond to assessment results and to address other areas of concern in the fishery, management through a harvest specification process is considered in this draft amendment. Several Commission-managed species are managed through a harvest specification process, a process by which the Management Board may specify regulations controlling future harvest within a meeting, through a Board vote. Typically, regulations are annually specified for the following year. However, one of the primary desires expressed by managers and stakeholders is for regulatory stability. Thus, a multi-year specification process is also considered in this draft amendment.

1.1.2 Benefits of Implementation

Amendment 1 is designed to respond to the removal of Atlantic cobia from SAFMC management. Amendment 1 will establish a process for recommending how NOAA Fisheries should enforce management regulations in federal waters. Since the approval of Regulatory Amendment 31 to the CMP FMP in March, 2019, the Commission is now the only management body that will make such recommendations.

Amendment 1 will also establish a process by which the Board may specify harvest regulations for one or more future years. Through this process, the Board can implement regulations that remain in place throughout entire fishing seasons or across multiple seasons, allowing for increased regulatory stability. An additional advantage of management through this approach is increased flexibility for states to establish or revise measures in response to changes in the

fishery or stock status, without needing to alter the FMP through an addendum or amendment. Measures that may be set through the specification process are defined in *Section 4.1*.

1.1.2.1 Social and Economic Benefits

Draft Amendment 1 proposes a management regime that will help ensure the long-term sustainability of the Atlantic cobia population, enhancing the social and economic benefits attributable to Atlantic cobia fisheries in Commission member states. In addition to ensuring the cobia fishery for future generations, socioeconomic benefits of implementation may arise from increased flexibility and the capacity to accommodate differences in member state fisheries and fishery management regimes. Amendment 1 will also enable the Board to specify harvest regulations for periods possibly exceeding one year. Increased stability in harvest regulations could be beneficial for individuals, businesses, and communities that depend on cobia fisheries financially or otherwise. In addition, the recognition of important socioeconomic monitoring requirements and research needs in Amendment 1 will increase the likelihood of implementing and/or continuing those monitoring and research tasks essential for effective fishery management at the state and regional levels.

1.2 DESCRIPTION OF THE RESOURCE

1.2.1 Species Life History

Cobia are a member of the family Rachycentridae and are distributed worldwide in tropical, subtropical and warm-temperate waters. In the western Atlantic they occur from Nova Scotia, Canada, south to Argentina, including the Caribbean Sea. They are abundant in warm waters off the coast of the U.S. from the Chesapeake Bay south and throughout the Gulf of Mexico (Gulf). Cobia prefer water temperatures between 68-86°F. As a pelagic fish, cobia are found over the continental shelf as well as around offshore natural and artificial reefs. Cobia frequently reside near any structure that interrupts the open water such as pilings, buoys, platforms, anchored boats, and flotsam, and are often seen under or accompanying rays, large coastal sharks, and sea turtles. Cobia are also found inshore inhabiting bays, inlets, and mangroves.

1.2.1.1 Stock Structure and Migration

Microsatellite-based analyses demonstrated that tissue samples collected from North Carolina, South Carolina, east coast Florida (near St. Lucie), Mississippi, and Texas showed disparate allele frequency distributions, and subsequent analysis of molecular variance showed population structuring occurring between the states (Darden et al., 2014). Results showed that the Gulf of Mexico stock appeared to be genetically homogeneous and that a segment of the population continued around the Florida peninsula to St. Lucie, FL, with a genetic break somewhere between St. Lucie, FL, and Port Royal Sound, SC. However, no samples were available from Cape Canaveral, FL, to Hilton Head Island, SC. Tag-recapture data across multiple studies and locations also suggested two stocks of fish that overlap at Brevard County, FL,

corroborating the genetic findings (Burns and Neidig, 1992; Hendon and Franks, 2010; Wiggers, 2010; Denson, 2012; Orbesen, 2012; Perkinson and Denson, 2012).

The Atlantic and Gulf stocks were separated at the Florida-Georgia (FL/GA) line during SEDAR 28 because genetic data suggested that the split is north of the Brevard/Indian River County line and tagging data did not dispute this split (SEDAR, 2013). The FL/GA line was selected as the stock boundary based on recommendations from the commercial and recreational work groups and comments that this boundary would allow easier management and did not conflict with the life history information available. However, there was not enough resolution in the genetic or tagging data to suggest that a biological stock boundary exists specifically at the FL-GA line, only that a mixing zone occurs around Brevard County, FL, and potentially to the north. The Atlantic stock was determined to extend northward, as far as New York.

In preparation for SEDAR 58, a Stock Identification Workshop was conducted in 2018. This workshop found similar results to those of SEDAR 28 using more recent tagging and genetic data. The Stock ID Workshop identified biologically distinct Atlantic and Gulf stocks separated by a transition zone that occurs from the southern boundary of Brevard County, FL, to Brunswick, GA (SEDAR, 2018). Data that would categorize cobia within the transition zone as belonging to either of the two defined stocks (Atlantic or Gulf) are not available. Additionally, this Workshop identified sub-regional population structure within the Atlantic stock, in which inshore populations from SC were biologically distinct from those in NC/VA. However, data did not support fish found in NC/SC offshore areas as being biologically distinct from either of these populations. Due to uncertainty surrounding biological structure within the Atlantic stock, the Workshop recommended to continue assessing this region as a single stock, from the FL/GA border north through New York.

Several ongoing research projects are expanding sample collection throughout coastal Georgia and northern Florida, which may help provide better resolution within the transition zone. In addition, a few hundred cobia have been tagged with acoustic tags in South Carolina, Georgia, and the east coast of Florida to evaluate movement patterns along the South Atlantic (FL-NC) coast of the United States.

During autumn and winter months, cobia presumably migrate south and offshore to warmer waters. In early spring, migration occurs northward along the Atlantic coast. However, tagging information from the 2018 Stock ID Workshop suggests a greater amount of inshore-offshore movement than was previously thought. Significant efforts are currently underway using various tagging methods to better understand the migratory behavior of cobia.

1.2.1.2 Age and Growth

Weighing up to a record 135 pounds whole weight (lb ww), cobia are more common along the US Atlantic coast at weights of approximately 40 lb ww (SEDAR, 2013). In this region, they reach lengths exceeding 160 cm (63 inches). Cobia grow quickly and have a moderately long life span. Maximum ages observed for Atlantic cobia were 15 and 16 years for males and females,

respectively (SEDAR, 2013). Cobia sexual maturity is more closely linked to size than age, with nearly all females maturing by the time they reach 80 cm (31.5 inches, approximately 2-3 years old) (SEDAR, 2013).

1.2.1.3 Spawning and Reproduction

Cobia form large aggregations, spawning during daylight hours between June and August in the Atlantic Ocean near the Chesapeake Bay and off South and North Carolina in May and June, respectively (SEDAR, 2013). Spawning is done through the release of multiple batches during the spawning season, at a frequency of once every 4-6 days (Brown-Peterson et al., 2001; Lefebvre and Denson, 2012; SEDAR, 2013). During spawning, cobia undergo changes in body coloration from brown to a light horizontal-striped pattern, releasing eggs and sperm into offshore open water. Cobia have also been observed spawning in estuaries and shallow bays with the young heading offshore soon after hatching. Cobia eggs are spherical, averaging 1.24 mm in diameter. Larvae are released approximately 24-36 hours after fertilization.

Newly hatched larvae are 2.5 mm (1 inch) long and lack pigmentation. Five days after hatching, the mouth and eyes develop, allowing for active feeding. A pale yellow streak is visible, extending the length of the body. By day 30, juveniles take on the appearance of adult cobia with two color bands running from the head to the posterior end.

1.2.2 Stock Assessment Summary

1.2.2.1 SEDAR 28

As described in *Section 1.2.1.1*, the most recent stock assessment, SEDAR 28, established the stock boundary between Atlantic and Gulf of Mexico cobia at the FL/GA border, based on tagging and genetic information and applicability to management (SEDAR, 2013). Therefore, the stock boundary for the assessment was also established at the FL/GA line. The Atlantic stock extends northward to New York.

The primary model used in SEDAR 28 was the Beaufort Assessment Model (BAM), a forward-projecting statistical catch-at-age model (SEDAR, 2013). This model included data from two fishery-dependent surveys and the recreational and commercial fisheries. Results of this assessment are summarized in the following sections.

1.2.2.1.1 *Abundance and Structure*

Estimated abundance at age since the 1990s showed a slight truncation of the oldest ages compared to the 1980s, but in general there was little obvious change in age structure over time. Total estimated abundance has varied about two-fold since the 1980s with a general decline since 2005. A strong year class was predicted to have occurred in 2005 comparable to those predicted periodically in the late 1980s and throughout the 1990s. However, predicted recruitment in later years (2007-2009) was below average.

1.2.2.1.2 *Fishing Mortality*

The estimated time series of fishing mortality rates (F) from the BAM was highly variable, with F for fully selected ages varying greater than four-fold since the 1980s. There was a drop in F in the 1990s following the implementation of the 2-fish per person bag limit, but there was a notable increase since the early 2000s. Since 2003, estimates of F averaged about 0.30. The recreational fleet has been the largest contributor to total F throughout the time series.

The estimated time series of F divided by F producing Maximum Sustainable Yield (F_{MSY}) from the base run suggested that overfishing has not been occurring over the course of the assessment period but with considerable uncertainty, particularly since the mid-2000s. Current fishery status, with current F represented by the geometric mean from 2009-2011, is estimated by the base run to be $F_{2009\text{-}2011}/F_{MSY} = 0.599$, but with much uncertainty in that estimate. As current F is less than F_{MSY}, overfishing is not occurring.

1.2.2.1.3 *Spawning Stock Biomass*

Estimated biomass at age followed the same general pattern as estimated abundance at age. Total biomass and spawning biomass showed similar trends - generally higher biomass in the 1990s and early 2000s compared to the 1980s and a decline in more recent years. The stock was estimated to be at its lowest point in the late 1980s and was estimated to be at a comparable level in the terminal year.

Estimated time series of stock status (Spawning Stock Biomass [SSB]/ Minimum Stock Size Threshold [MSST], SSB/SSB producing Maximum Sustainable Yield [SSB_{MSY}]) showed a general decline through the 1980s, an increase in the late 1980s and early 1990s, followed by a decline in more recent years. The increase in stock status in the 1990s may have been driven by several strong year classes and perhaps reinforced by the 2-fish per person bag limit implemented in 1990. Base run estimates of spawning biomass have remained above MSST throughout the time series. Current stock status from the base run was estimated to be $SSB_{2011}/MSST = 1.75$, indicating that the stock is not overfished. Age structure estimated from the base run shows more old fish than the (equilibrium) age structure expected at MSY. However, in the most recent year, ages 1-7 approached the MSY age structure.

1.2.2.2 SEDAR 58

Another stock assessment, SEDAR 58, is currently ongoing and scheduled for completion by the beginning of 2020. A Stock Identification Workshop was conducted in 2018 to prepare for this assessment. This Workshop maintained the FL/GA border as the stock boundary, because this border is within a transition zone that occurs from the southern boundary of Brevard County, FL, to Brunswick, GA (SEDAR, 2018). Data that would categorize cobia within the transition zone as belonging to either of the two defined stocks (Atlantic or Gulf) are not available.

1.2.3 Current Stock Status

The Gulf and Atlantic migratory groups of cobia were last assessed by SEDAR 28 in 2013. The SEDAR 28 stock assessment for Atlantic migratory group cobia (Atlantic cobia) determined that the stock is not overfished nor experiencing overfishing.

1.3 DESCRIPTION OF THE FISHERY

1.3.1 Commercial Fishery

Commercial fisheries statistics throughout this amendment were obtained from the Atlantic Coastal Cooperative Statistics Program (ACCSP), unless otherwise stated.

From 2010 through 2017, annual commercial landings of Atlantic cobia ranged from approximately 33,000 to 91,000 lb ww (Table 1). Total coastwide dockside revenues in constant 2017 dollars from those landings have generally increased since 2010, ranged from approximately $80,000 to $ $235,000 in 2016 (Table 1). The annual average dockside price in 2017 dollars for those eight years was $2.43 per lb ww. The highest landings and revenues occurred in 2016, whereas the lowest for both landings and revenues occurred in 2011. When the Florida east coast zone was still part of the management area for Atlantic cobia, commercial harvest reached the sector's quota of 125,712 lb ww in 2014 and closed on December 11, 2014. Under the modified management area excluding the Florida east coast zone (SAFMC Amendment 20B to CMP FMP – May 2014), the quota for Atlantic cobia was revised to 60,000 lb landed weight (lw) in 2015 and 50,000 lb lw in 2016 and thereafter. Although landings exceeded the 2015 quota, no quota closure was imposed. Commercial landings for 2016 were 90,887 lb (ACCSP, queried April, 2019) and the federal commercial fishery closed on December 6, 2016. Although 2018 landings are not finalized, the 50,000 lb quota was exceeded each of the past two years (2017: 61,817 lb, 2018: TBD) with the federal commercial fishery closing September 5th of each year (Table 1).

Commercial landings of Atlantic cobia have predominantly come from North Carolina, followed by Virginia and South Carolina (Table 1). Georgia landings are relatively small and confidential. Cobia landings north of Virginia are relatively rare and sporadic, thus, Virginia is considered the northernmost major contributor to the commercial Atlantic cobia fishery. One notable feature for Virginia is the surge in landings since 2014, although they were still typically lower than landings in North Carolina. However, after 2016, North Carolina commercial cobia landings and related dockside revenues declined substantially and were much lower than Virginia.

Commercial fishermen harvest cobia using a variety of gear types. Table 2 shows commercial Atlantic cobia landings and revenues by major gear types. Gill nets are the foremost gear type used in harvesting cobia for most years (Table 2), followed by hook and line. Hand line landings have increased substantially since 2010. Longline has been a minor gear type in the commercial harvest of cobia. The 8-year averages for annual dockside revenues from major gear categories range from $80,000-$235,000 (Table 2).

Table 1. Annual commercial Atlantic cobia landings (lb ww) and dockside revenues (2017 $) by state/area 2010-2017. State landings outside of VA-SC are small and may be confidential. Coastwide total landings include all commercial landings in the management unit, GA-NY. Source: ACCSP, queried April, 2019.

Year	SC	NC	VA	Coastwide Total	Federal Season Close Date
	Pounds (whole weight)				
2010	2,749	43,715	8,852	56,255	
2011	4,466	19,924	8,522	33,708	
2012	3,731	31,972	5,389	42,401	
2013	4,254	35,456	11,073	53,313	
2014	3,880	41,798	22,345	69,366	12/12/2014*
2015	2,763	52,684	27,722	84,367	
2016	4,532	48,244	36,460	90,887	12/6/2016
2017	4,590	20,842	36,384	66,289	9/5/2017
2018					9/5/2018
Average	3,871	36,829	19,593	62,073	
Year	**SC**	**NC**	**VA**	**Coastwide Total**	**Federal Season Close Date**
	Annual Dockside (Ex-vessel) Revenues in Constant 2017 Dollars[a]				
2010	$10,709	$72,722	$19,511	$105,149	
2011	$19,578	$38,395	$19,994	$80,182	
2012	$15,063	$66,591	$12,036	$97,340	
2013	$15,253	$77,638	$29,569	$129,432	
2014	$11,666	$91,457	$61,993	$169,305	12/12/2014*
2015	$9,043	$114,602	$79,052	$205,779	
2016	$16,664	$110,120	$104,507	$235,023	12/6/2016
2017	$17,409	$50,076	$110,123	$186,964	9/5/2017
2018					9/5/2018
Average	$14,423	$77,700	$54,598	$151,147	

* Included Florida

[a] Nominal dollars converted to 2017 constant dollars using the annual, not seasonally adjusted, GDP implicit price deflator (Index = 2015) provided by the U.S. Bureau of Economic Analysis.

Table 2. Commercial Atlantic cobia landings (lb ww) and dockside revenues (2017 $) by gear, 2010-2017. Source: ACCSP, queried April, 2019.

	Hook and Line	Gill nets	Hand Line	Others	Total
Year	**Pounds (Whole Weight)**				
2010	14,474	23,327	3,899	14,554	56,255
2011	10,651	9,168	5,463	8,426	33,708
2012	9,854	21,027	2,651	8,869	42,401
2013	20,512	13,279	5,285	14,237	53,313
2014	18,779	23,416	12,895	14,276	69,366
2015	18,535	36,737	16,510	12,585	84,367
2016	17,471	35,426	22,529	15,462	90,887
2017	12,994	21,397	19,348	12,550	66,289
Average	15,409	22,972	11,072	12,620	62,073
Year	**Annual Dockside (Ex-vessel) Revenues in Constant 2017 Dollars[a]**				
2010	$30,884	$39,643	$9,344	$25,279	$105,149
2011	$30,707	$18,476	$13,877	$17,122	$80,182
2012	$27,683	$43,649	$6,177	$19,831	$97,340
2013	$51,298	$29,339	$14,905	$33,889	$129,432
2014	$45,702	$51,884	$38,621	$33,098	$169,305
2015	$46,786	$80,467	$49,060	$29,465	$205,779
2016	$48,112	$81,962	$64,992	$39,956	$235,023
2017	$39,682	$53,233	$59,516	$34,533	$186,964
Average	$40,107	$49,832	$32,061	$29,147	$151,147

[a] Nominal dollars converted to 2017 constant dollars using the annual, not seasonally adjusted, GDP implicit price deflator (Index = 2015) provided by the U.S. Bureau of Economic Analysis.

1.3.1.1 State-Specific Commercial Fisheries

1.3.1.1.1 *Virginia*

Virginia has had variable commercial landings of cobia since the Virginia Marine Resources Commission instituted mandatory reporting in 1993, with landings being high in the mid-1990s (Appendix I, Table A1), lower in the mid-2000s, steadily increasing from 2013-2017, and peaking in 2016 and 2017. There was a decline in commercial landings in 2018 (preliminary from VMRC; Appendix I, Table A1) contributed in part to state regulations limiting harvest to two fish per commercial license holder, or six per vessel. In most circumstances, there is only one licensed

fishermen onboard each vessel, restricting daily landings to two fish. There is a small but directed hook-and-line fishery, which has been the prominent gear since 2007 with over 71% of the harvest the past ten years. Bycatch landings occur from gillnets (12.1%) and pound nets (8.2%), although these landings can be sizable. Other gears that have caught cobia include haul seines (1.34%) and trawls (1.99%).

1.3.1.1.2 *North Carolina*

Commercial landings of cobia in North Carolina are available from 1950 to the present.

However, monthly landings are not available until 1974. North Carolina instituted mandatory reporting of commercial landings through their Trip Ticket Program, starting in 1994. Landings information collected since 1994 are considered the most reliable. The primary fisheries associated with cobia in North Carolina are the snapper-grouper, coastal pelagic troll, and the large mesh estuarine gill net fisheries. Cobia landings from 1950 – 2018 have ranged from a low of 600 lb (1951; 1955) to a high of 52,684 lb (2015) with average landings of 16,730 lb over the 68-year time series (landings since 1981 shown in Appendix I, Table A1). Since 2010, landings have ranged from 19,924 lb (2011) to 52,684 lb (2015), averaging 36,829 lb (Table 1).

The primary commercial gear used to harvest cobia has changed over time. This is most likely due to changing fisheries and the fact that it is mostly considered a marketable bycatch fishery, especially after North Carolina adopted the CMP FMP measures of 33-inches minimum FL and two-per person possession limit in 1991. From 1950 to the late 1970s, cobia were mostly landed out of the haul seine fishery. Most landings that occurred during the 1980s came from the pelagic troll and hand line fishery with modest landings from the haul seine and anchored gill net fishery. From 1994-2018, the majority of landings have occurred from the anchored gill net and pelagic troll and hand line fisheries with gill nets being the top gear during most of those years.

1.3.1.1.3 *South Carolina*

There is a limited commercial fishery for cobia in South Carolina. Cobia are a state-designated Gamefish, and as such, cobia landed in state waters may not be sold commercially. However, cobia landed in Federal waters can be sold commercially under current regulations. Commercial cobia landings have ranged from 2,700-4,600 lb per year with an annual mean of 3,800 lb per year for 2010-2017 and dollar values (2017 dollars) ranging from $9,000-$19,600 annually (Table 1).

1.3.1.1.4 *Georgia*

There is no directed commercial fishery for cobia in Georgia. Commercial landings may occur but they are typically the result of bycatch in other targeted fisheries. Some illegal sale of recreationally-caught cobia may occur; however, the total amount and dockside value is relatively small. The greatest recorded landings in Georgia (since annual landings became

available in 1979) occurred in 1993 when 2,730 lb of cobia were landed resulting in a market value of $4,728 (in nominal dollars).

1.3.2 Recreational Fishery

The recreational sector is comprised of a private component and a for-hire component. The private component includes anglers fishing from shore (including all land-based structures) and private/rental boats. The for-hire component is composed of charter boats and headboats (also called partyboats). Although charter boats tend to be smaller, on average, than headboats, the key distinction between the two types of operations is how the fee is typically determined. On a charter boat trip, the fee charged is for the entire vessel, regardless of how many passengers are carried, whereas the fee charged for a headboat trip is paid per individual angler.

1.3.2.1 Permits

There are no specific federal permitting requirements for recreational anglers to fish for or harvest cobia. Instead, anglers are required to possess either a state recreational fishing permit that authorizes saltwater fishing in general, or be registered in the federal National Saltwater Angler Registry system, subject to appropriate exemptions.

Recently, the states of North Carolina and Virginia have developed programs to survey recreational cobia fishermen. These programs may provide information in the future that would help characterize the cobia fisheries in these states.

1.3.2.2 Harvest

In July, 2018, the MRIP began releasing recreational harvest information with fishing effort estimated or calibrated according to the mail-based Fishing Effort Survey (FES), rather than the previously used Coastal Household Telephone Survey (CHTS). Recreational landings shown in this section and throughout the amendment are shown as FES estimates/calibrations, although 2018 and 2019 regulations and landings are based on calibrations to CHTS effort. The FES calibrations and estimates are being incorporated into the ongoing stock assessment. Upon completion of the stock assessment and acceptance by the Board for management use, FES estimates will be used for setting quotas and targets and evaluating recreational harvests. For comparative and short-term management purposes, Appendix I, Table A2, shows recreational harvest estimates in pounds since 1981 based on the CHTS effort estimates or calibrations. Appendix I, Table A3, shows recreational harvest estimates in pounds since 1981 based on the FES effort estimates or calibrations.

On average, from 2010 through 2018, the recreational sector landed approximately 1,837,610 lb ww of Atlantic cobia (Table 3). North Carolina has been the dominant state in recreational landings of cobia, followed by Virginia, South Carolina, and Georgia. Cobia landings north of Virginia are relatively rare and sporadic, thus, Virginia is considered the northernmost major contributor to the recreational Atlantic cobia fishery. However, in 2018, recreational landings of

cobia were reported in Delaware, as well as outside of the management unit in Connecticut. Harvests from these states are considered minimal, however this information could indicate that cobia migrate further north than expected.

The private/rental mode has been the most dominant fishing mode for harvesting cobia (Table 4). Party boats have provided the lowest contribution to recreational landings of cobia. Information reported in Table 4 indicates that harvest estimates in 2018 were the highest across all modes in the time-series except for the private/rental mode in 2015. Harvest levels in 2018 were also higher across all modes in comparison to the long-term average (2010 through 2018).

Table 3. Annual recreational landings (lb ww) of Atlantic cobia, by state, 2010-2018 preliminary). Source: MRIP, queried April, 2019.

Year	NJ	DE	MD	VA	NC	SC	GA	Total
2010	0	0	1,179	557,907	808,227	100,614	230,865	1,698,792
2011	0	0	0	341,751	399,192	0	182,799	923,742
2012	60,473	0	0	47,547	102,077	214,512	512,499	937,108
2013	0	0	0	488,181	980,541	24,005	43,915	1,536,642
2014	0	0	0	499,218	645,427	79,171	42,481	1,266,297
2015	0	0	0	1,166,000	1,925,762	434,899	102,917	3,629,578
2016	0	0	307	1,505,528	838,363	159,345	0	2,503,543
2017	0	0	0	488,287	872,861	0	390	1,361,538
2018	0	9,664	3,254	1,936,274	561,526	160,191	6,226	2,677,135
Average	6,719	1,074	527	781,188	792,664	130,304	124,677	1,837,153

Source: MRIP, queried April, 2019.

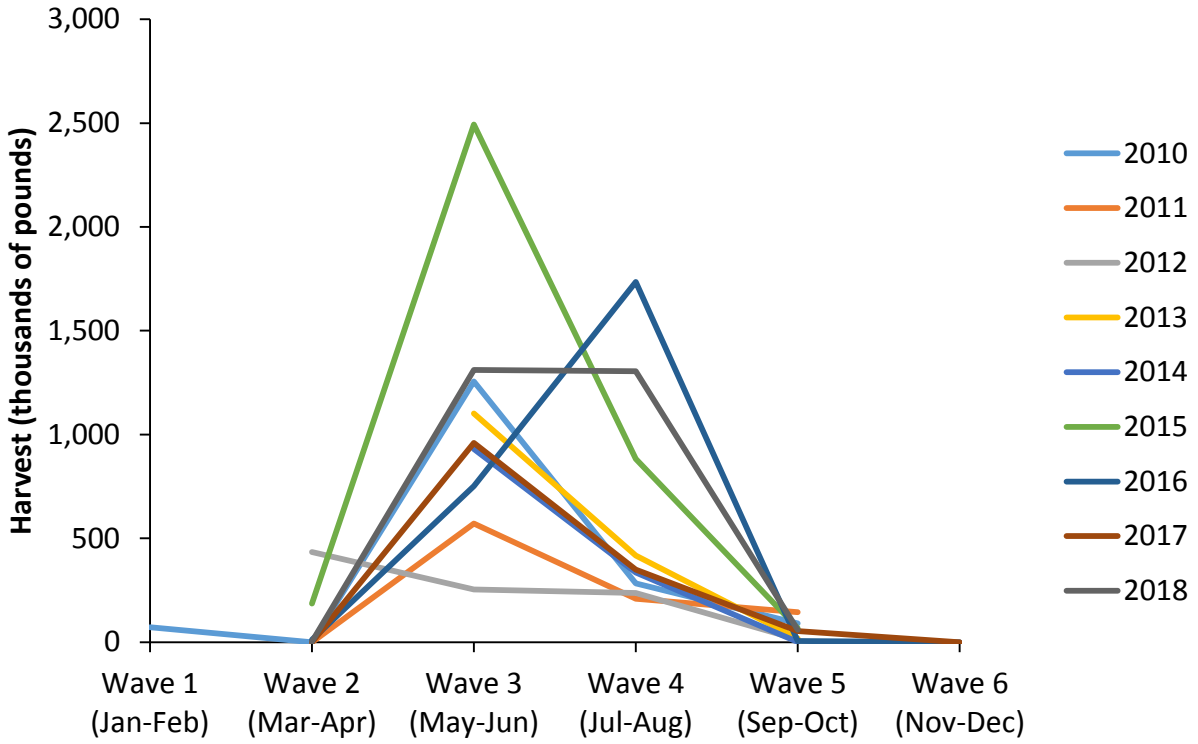
Table 4. Annual recreational landings (lb ww) of Atlantic cobia, by fishing mode, 2010-2018 (preliminary).

Year	CHARTER BOAT	PRIVATE/RENTAL BOAT	SHORE	Grand Total
2010	99,424	1,550,698	48,670	1,698,792
2011	17,668	771,218	134,856	923,742
2012	21,605	855,030	60,473	937,108
2013	98,524	1,438,118	0	1,536,642
2014	56,727	1,057,192	152,377	1,266,296
2015	70,342	3,303,860	255,375	3,629,577
2016	116,598	1,921,275	465,671	2,503,544
2017	47,407	1,314,131	0	1,361,538
2018	138,276	1,977,726	559,635	2,675,637
Average	74,063	1,576,583	186,340	1,836,986

Source: MRIP, queried April, 2019.

Peak recreational landings of cobia typically occur in Wave 3 (May-June) each year (Figure 1). In 2016, recreational landings peaked in Wave 4 (July-August). Recreational landings steeply increased from Wave 2 (March-April) to their peak and also steeply declined after the peak wave. Landings are concentrated around the Waves 3 and 4. In 2018, the peak was broader with similar landings in Waves 3 and 4.

Figure 1. Distribution of Atlantic cobia recreational harvest, by wave, 2010-2018 (preliminary). Source: MRIP, queried April, 2019.



1.3.2.3 Effort

Recreational effort derived from the Marine Recreational Fisheries Statistics Survey (MRFSS)/MRIP database can be characterized in terms of the number of trips as follows:

Target effort - The number of individual angler trips, regardless of duration, where the intercepted angler indicated that the species or a species in the species group was targeted as either the first or second primary target for the trip. The species did not have to be caught.

Catch effort - The number of individual angler trips, regardless of duration and target intent, where the individual species or a species in the species group was caught. The fish did not have to be kept.

Total recreational trips - The total estimated number of recreational trips in the Atlantic, regardless of target intent or catch success.

Other measures of effort are possible, such as the number of harvest trips (the number of individual angler trips that harvest a particular species regardless of target intent), and directed trips (the number of individual angler trips that either targeted or caught a particular species), but the three measures of effort listed above are used in this assessment.

Estimates of annual Atlantic cobia effort (in terms of individual angler trips) for 2010-2018 are provided in Table 5 for target trips and Table 6 for catch trips. Target and catch trips are shown by fishing mode (charter, private/rental, shore) for Georgia, South Carolina, North Carolina, and Virginia. These are trips for cobia in state or federal waters off of these states. Estimates of cobia target and catch trips for additional years, and other measures of directed effort, are available at http://www.st.nmfs.noaa.gov/recreational-fisheries/access-data/run-a-dataquery/queries/index.

Cobia is one of the few species where target trips generally exceed catch trips. The 2010-2018 average target trips were 4,721 for the charter mode, 291,682 for the private/rental mode, and 143,999 for the shore mode (Table 5). In contrast, the average catch trips were 2,896 for the charter mode, 38,965 for the private/rental mode, and 3,240 for the shore mode (Table 6). This is suggestive of a relatively strong interest in fishing for cobia among recreational anglers across all fishing modes. For each state, the private/rental mode has been the most dominant fishing mode both in target and catch effort.

Headboat data in the Southeast do not support the estimation of target or catch effort because target intent is not collected and the harvest data (the data reflects only harvest information and not total catch) are collected on a vessel basis and not by individual angler. Table 7 contains estimates of the number of headboat angler days for the South Atlantic states for 2010-2017. Georgia and South Carolina data are combined for confidentiality purposes. Virginia information was not available because only South Atlantic headboats are included in the SRHS.

Table 5. Target trips for Atlantic cobia, by fishing mode and state, 2010-2018 (preliminary). Source: NOAA Fisheries, Fisheries Statistics Division, queried April, 2019.

Year	Georgia	S. Carolina	N. Carolina	Virginia	Total
	Charter				
2010	0	3,239	1,904	499	5,642
2011	21	1,423	1,386	245	3,075
2012	0	987	251	10	1,248
2013	0	0	2,446	24	2,470
2014	0	1,247	1,463	299	3,009
2015	658	1,430	2,541	1,430	6,059
2016	0	1,477	4,192	519	6,188
2017	0	1,409	3,723	678	5,810
2018	359	570	6,953	1,103	8,985
Average	115	1,309	2,762	534	4,721
	Private/Rental				
2010	5,725	28,751	74,155	159,971	268,602
2011	8,774	46,087	39,326	105,236	199,423
2012	12,959	96,256	40,374	52,301	201,890
2013	38,131	60,983	97,360	121,668	318,142
2014	1,754	37,370	111,211	125,694	276,029
2015	47,929	36,447	146,966	120,189	351,531
2016	7,332	42,256	147,313	192,557	389,458
2017	402	1,352	140,667	152,785	295,206
2018	3,861	14,945	69,677	236,378	324,861
Average	14,096	40,494	96,339	140,753	291,682
	Shore				
2010	0	0	26,791	32,717	59,508
2011	0	0	23,836	10,078	33,914
2012	0	5,304	36,502	92,793	134,599
2013	0	3,528	58,781	21,160	83,469
2014	0	77,879	49,807	77,879	205,565
2015	0	1,583	106,171	96,147	203,901
2016	0	171	132,730	85,610	218,511
2017	0	0	102,087	130,665	232,752
2018	0	11,563	75,279	36,931	123,773
Average	0	11,114	67,998	64,887	143,999

Table 6. Catch trips for Atlantic cobia, by fishing mode and state, 2010-2018 (preliminary). Source: NOAA Fisheries, Fisheries Statistics Division, queried April, 2019.

Year	Georgia	S. Carolina	N. Carolina	Virginia	Total
	Charter				
2010	74	942	3,297	179	4,492
2011	369	0	778	25	1,172
2012	63	0	306	10	379
2013	160	48	1,802	24	2,034
2014	54	0	1,702	0	1,756
2015	0	598	2,047	1,302	3,947
2016	0	809	2,818	208	3,835
2017	37	0	1,237	133	1,407
2018	314	796	5,173	759	7,042
Average	119	355	2,129	293	2,896
	Private/Rental				
2010	7,776	2,322	15,713	15,876	41,687
2011	7,898	0	4,870	5,867	18,635
2012	15,090	5,830	2,946	1,348	25,214
2013	788	1,566	28,193	15,753	46,300
2014	3,667	4,727	18,101	17,444	43,939
2015	8,934	13,320	35,080	9,744	67,078
2016	0	5,892	8,392	13,863	28,147
2017	0	0	16,982	10,652	27,634
2018	0	4,521	11,151	36,378	52,050
Average	4,906	4,242	15,714	14,103	38,965
	Shore				
2010	0	0	2,447	0	2,447
2011	0	0	6,583	0	6,583
2012	0	0	0	0	0
2013	0	0	0	0	0
2014	0	0	5,437	0	5,437
2015	0	0	7,591	0	7,591
2016	0	0	4,918	0	4,918
2017	0	0	0	0	0
2018	0	1,375	806	0	2,181
Average	0	153	3,087	0	3,240

Table 7. South Atlantic headboat angler days, by state, 2010-2017. Source: NOAA Fisheries Southeast Region Headboat Survey (SRHS).

Year	GA/SC	NC	TOTAL
2010	46,908	21,071	67,979
2011	46,210	18,457	64,667
2012	42,064	20,766	62,830
2013	42,853	20,547	63,400
2014	44,092	22,691	66,783
2015	41,479	22,716	64,195
2016	43,954	21,565	65,519
2017	38,655	20,170	58,825
Average	43,277	20,998	64,275

1.3.2.4 State Specific Recreational Fisheries

1.3.2.4.1 *Virginia*

Virginia's recreational landings of cobia have been highly variable since the mid-1980s, with the lowest estimate being 21,167 lb in 1987 and the highest being 1,936,274 lb in 2018. The recreational fishery seems to have grown in recent years, both in the number of participants, and the effectiveness of fishing due to the advent of sight-casting – especially when aided by "cobia towers." Traditionally, cobia had been targeted using live-bait bottom-fishing, but these new techniques are causing a shift in preference among anglers.

Other states experience pulses of abundance in cobia as they migrate up and down the Atlantic coast. However, the amount of time cobia spend in Virginia waters is substantially longer that of other Mid-Atlantic states. Cobia can be found in Virginia waters from mid-May through the end of October.

In 2016, Virginia developed a monitoring program to survey recreational cobia fisherman. The program was developed to characterize Virginia's cobia fishery for future management.

1.3.2.4.2 *North Carolina*

Historically, recreational fisherman targeted cobia from a vessel by anchoring and fishing with dead, live, or a mixture of both bait types near inlets and deep water sloughs inshore (Manooch, 1984). Fish were also harvested from shore or off of piers using dead or live bait. In the early 2000s, fishermen began outfitting their vessels with towers to gain a higher vantage point to spot and target free-swimming cobia along tidelines and around bait aggregations. This method of fishing actively targets cobia in the nearshore coastal zone and has become the primary mode of fishing in most parts of the state.

Recreational harvests of cobia in North Carolina from 1981-2018 have ranged from a low of 0 lb (1983) to a high of 1,925,762 lb (2015) (Appendix I, Table A3). Landings during the 1980s and 1990s remained relatively constant from year to year. Landings began to increase and become more variable beginning in the mid-2000s. From 2010-2018, recreational cobia landings in North Carolina ranged from 102,077 to 1,925,762 lb (792,664 lb on average). Seasonally, cobia are landed mostly in the spring and summer months corresponding with their spring spawning migration (Smith, 1995). Peak landings occur during the latter part of May into June and quickly diminish thereafter. However, recreational landings of cobia can occur through the month of October.

1.3.2.4.3 *South Carolina*

The recreational fishery accounts for the majority of cobia landings in South Carolina. The fishery occurs in both nearshore waters and around natural and artificial reefs offshore. Historically, the majority of cobia landings have occurred in state waters in and around spawning aggregations from April through May. However, due to intense fishing pressure in the inshore zone, annual landings of cobia have fallen drastically since 2009, such that the majority of recreationally caught cobia in South Carolina now come from offshore (federal) waters. Anglers begin targeting cobia in late April-early May with the peak of the season typically occurring May into early June. Late season catches can occur on nearshore reefs through October depending on water temperatures.

1.3.2.4.4 *Georgia*

A large recreational fishery exists for cobia in Georgia. The majority of this fishery occurs in nearshore waters around natural and artificial reefs. While there are some instances of cobia being caught inshore and on beach front piers in Georgia, most landings come from outside state waters. Anglers begin targeting cobia in late April-early May with the peak of the season typically occurring in June. Late season catches often occur on nearshore reefs through October depending on water temperatures. However, these fall runs of fish are sporadic and are often missed by anglers.

1.3.3 Subsistence Fishing

No subsistence fisheries for Atlantic cobia have been identified at this time.

1.3.4 Non-Consumptive Factors

No significant non-consumptive factors for Atlantic cobia have been identified at this time.

1.3.5 Interactions with Other Fisheries

The recreational cobia fishery tends to be a targeted fishery. Various small and large coastal sharks and ray species are the most common bycatch. Cobia are encountered as bycatch in the troll and live bait fisheries for king and Spanish mackerel, dolphin, and other pelagic species.

Additionally, cobia are taken incidental to offshore bottom fishing activities for snapper/grouper species.

The commercial cobia fishery is primarily bycatch in the same troll fisheries and taken incidental to snapper/grouper fisheries. Some directed harvest does occur; however, low limits preclude a large scale fishery.

1.4 HABITAT CONSIDERATIONS

1.4.1 Habitat Important to the Stocks

1.4.1.1 Description of the Habitat

1.4.1.1.1 *Spawning Habitat*

Cobia spawn in nearshore waters along the South Atlantic coast from April through June. Nearby states (South Carolina) have documented the presence of inshore spawning aggregations of cobia (Lefebvre and Denson, 2012). However, there have been no such aggregations identified in Georgia. Eggs and larvae are typically found in nearshore waters and juveniles most often occur inshore or in protected nearshore waters.

Cobia enter nearshore waters along the south Atlantic Coast when water temperatures reach 20-21 °C, usually late April and aggregate to spawn through June. Histological evaluation of gonads from these nearshore collections suggest cobia are mature and spawning in inshore waters of high salinity estuaries (Callibogue, Port Royal Sound and St. Helena Sound in SC) (Lefebvre and Denson, 2012). The inshore spawning aggregations in South Carolina have been determined to be genetically distinct from the Atlantic stock of cobia (Darden et al., 2014). These findings are corroborated by conventional tag-recapture information and show estuarine fidelity for spawning fish and natal homing annually into estuaries. Eggs and larvae are typically found in nearshore waters where there is significant retention time of estuarine waters; however, juveniles (< 2yrs of age) are only occasionally caught inshore or in protected nearshore waters making it unclear what habitat the majority of this life stage utilizes until they mature and join spawning aggregations (Lefebvre and Denson, 2012).

1.4.1.1.2 *Larval Habitat*

Little is known about the larval stages of cobia. Larvae have been collected in pelagic waters of the Gulf of Mexico (65-134 m isobaths), within a meter of the water column (Ditty and Shaw, 1992).

1.4.1.1.3 *Juvenile Habitat*

Juveniles, like larvae, have also been found in pelagic waters of the Gulf of Mexico, and are believed to utilize floating *Sargassum* as habitat in such areas (Ditty and Shaw, 1992). Early

juveniles then move to high-salinity, inshore areas along beaches, river mouths, barrier islands, and bays/inlets (Swingle, 1971; McClane, 1974; Hoese and Moore, 1977; Benson, 1982).

1.4.1.1.4 *Adult Habitat*

Adults enter estuaries on a seasonal basis but otherwise inhabit coastal waters and the continental shelf (Collette et al., 1978; Benson, 1982; Robins and Ray, 1986). Although generally considered pelagic, adult cobia are found at various depths throughout the water column (Freeman and Walford, 1976). They do not appear to be substratum-specific, but extensive tagging research is currently being conducted by various states along the U.S. Atlantic coast to better determine movement and habitat usage.

1.4.1.1.4.1 South Atlantic Region

The continental shelf off the southeastern U.S., extending from the Dry Tortugas, FL, to Cape Hatteras, NC, encompasses an area in excess of 100,000 square km (Menzel, 1993). Based on physical oceanography and geomorphology, this environment can be divided into two regions: Dry Tortugas, FL, to Cape Canaveral, FL, and Cape Canaveral, FL, to Cape Hatteras, NC. The continental shelf from the Dry Tortugas, FL, to Miami, FL, is approximately 25 km wide and narrows to approximately 5 km off Palm Beach, FL. The shelf then broadens to approximately 120 km off Georgia and South Carolina before narrowing to 30 km off Cape Hatteras, NC. The Florida Current/Gulf Stream flows along the shelf edge throughout the region. In the southern region, this boundary current dominates the physics of the entire shelf (Lee et al., 1994).

In the northern region, additional physical processes are important and the shelf environment can be subdivided into three oceanographic zones (Atkinson et al., 1985; Menzel, 1993), the outer shelf, mid-shelf, and inner shelf. The outer shelf (40-75 meters (m)) is influenced primarily by the Gulf Stream and secondarily by winds and tides. On the mid-shelf (20-40 m), the water column is almost equally affected by the Gulf Stream, winds, and tides. Inner shelf waters (0-20 m) are influenced by freshwater runoff, winds, tides, and bottom friction.

Water masses present from the Dry Tortugas, FL, to Cape Canaveral, FL, include Florida Current water, waters originating in Florida Bay, and shelf water. Spatial and temporal variation in the position of the western boundary current has dramatic effects on water column habitats. Variation in the path of the Florida Current near the Dry Tortugas induces formation of the Tortugas Gyre (Lee et al., 1992; Lee et al., 1994). This cyclonic eddy has horizontal dimensions of approximately 100 km and may persist near the Florida Keys for several months. The Pourtales Gyre, which has been found to the east, is formed when the Tortugas Gyres moves eastward along the shelf. Upwelling occurs in the center of these gyres, thereby adding nutrients to the near surface (<100 m) water column. Wind and input of Florida Bay water also influence the water column structure on the shelf off the Florida Keys (Smith, 1994; Wang et al., 1994). Further downstream, the Gulf Stream encounters the “Charleston Bump”, a topographic rise on the upper Blake Ridge where the current is often deflected offshore resulting in the formation of a cold, quasi-permanent cyclonic gyre and associated upwelling (Brooks and Bane,

1978). On the continental shelf, offshore projecting shoals at Cape Fear, Cape Lookout, and Cape Hatteras, NC, affect longshore coastal currents and interact with Gulf Stream intrusions to produce local upwelling (Blanton et al., 1981; Janowitz and Pietrafesa, 1982). Shoreward of the Gulf Stream, seasonal horizontal temperature and salinity gradients define the mid-shelf and inner-shelf fronts. In coastal waters, river discharge and estuarine tidal plumes contribute to the water column structure.

The water column from Dry Tortugas, FL, to Cape Hatteras, NC, serves as habitat for many marine fish and shellfish. Most marine fish and shellfish release pelagic eggs when spawning and thus, most species utilize the water column during some portion of their early life history (Leis, 1991; Yeung and McGowan, 1991). Many fish inhabit the water column as adults. Pelagic fishes include numerous clupeoids, flying fish, jacks, cobia, bluefish, dolphin, barracuda, and the mackerels (Schwartz, 1989). Some pelagic species are associated with particular benthic habitats, while other species are truly pelagic.

1.4.1.1.4.2 Mid-Atlantic Region

Information about the physical environment of the Mid-Atlantic region was provided by the Mid-Atlantic Fishery Management Council (MAFMC) and adapted from the 2016 Mackerel, Squid, and Butterfish Specifications Environmental Assessment, available at: http://www.greateratlantic.fisheries.noaa.gov/regs/2016/January/16msb2016specspr.html.

Climate, physiographic, and hydrographic differences separate the Atlantic Ocean from Maine to Florida into the New England-Middle Atlantic Area and the South Atlantic Area (division/mixing at Cape Hatteras, NC). The inshore New England-Middle Atlantic area is fairly uniform physically and is influenced by many large coastal rivers and estuarine areas. The continental shelf (characterized by water less than 650 ft. in depth) extends seaward approximately 120 miles off Cape Cod, narrows gradually to 70 miles off New Jersey, and is 20 miles wide at Cape Hatteras. Surface circulation is generally southwesterly on the continental shelf during all seasons of the year, although this may be interrupted by coastal indrafting and some reversal of flow at the northern and southern extremities of the area. Water temperatures range from less than 33^{o}F from the New York Bight north in the winter to over 80^{o}F off Cape Hatteras in summer.

Within the New England-Middle Atlantic Area, the Northeast U.S. Continental Shelf Large Marine Ecosystem includes the area from the Gulf of Maine to Cape Hatteras, extending from the coast seaward to the edge of the continental shelf, including the slope sea offshore to the Gulf Stream. The Northeast U.S. Continental Shelf Large Marine Ecosystem is a dynamic, highly productive, and intensively studied system providing a broad spectrum of ecosystem goods and services. This region, encompassing the continental shelf area between Cape Hatteras and the Gulf of Maine, spans approximately 250,000 km^2 and supports some of the highest revenue fisheries in the U.S. The system historically underwent profound changes due to very heavy exploitation by distant-water and domestic fishing fleets. Further, the region is experiencing

changes in climate and physical forcing that have contributed to large-scale alteration in ecosystem structure and function. Projections indicate continued future climate change related to both short and medium-term cyclic trends as well as non-cyclic climate change.

A number of distinct subsystems comprise the region. The Gulf of Maine is an enclosed coastal sea, characterized by relatively cold waters and deep basins, with various sediment types. Georges Bank is a relatively shallow coastal plateau that slopes gently from north to south and has steep submarine canyons on its eastern and southeastern edge. It is characterized by highly productive, well-mixed waters and fast-moving currents. The Mid-Atlantic Bight is comprised of the sandy, relatively flat, gently sloping continental shelf from southern New England to Cape Hatteras, NC. Detailed information on the affected physical and biological environments inhabited by the managed resources is available in Stevenson et al. (2004).

1.4.2 Identification and Distribution of Habitat and Habitat Areas of Particular Concern

Habitat information for Atlantic cobia is sparse. Few, if any, fishery independent surveys consistently interact with cobia in numbers adequate to develop any trends or conclusions. Much of the habitat data presented is generic for the coastal migratory pelagic fishes that include king and Spanish mackerel. Species-specific habitat information is a data and research need.

A description of the Habitat Areas of Particular Concern (HAPC) for CMP species is provided in Amendment 18 to the CMP FMP (GMFMC and SAFMC, 2011), and is incorporated herein by reference. Areas which meet the criteria for HAPCs include sandy shoals of Cape Lookout, Cape Fear, and Cape Hatteras from shore to the ends of the respective shoals, but shoreward of the Gulf Stream; The Point, the Ten-Fathom Ledge, and Big Rock (North Carolina); The Charleston Bump and Hurl Rocks (South Carolina); The Point off Jupiter Inlet (Florida); *Phragmatopoma* (worm reefs) reefs off the central east coast of Florida; nearshore hard bottom south of Cape Canaveral; The Hump off Islamorada (Florida); The Marathon Hump off Marathon (Florida); The "Wall" off of the Florida Keys; Pelagic *Sargassum*; and Atlantic coast estuaries with high numbers of Spanish mackerel and cobia based on abundance data from the Estuarine Living Marine Resources Program. Estuaries meeting this criteria for Spanish mackerel include Bogue Sound and New River (North Carolina), for cobia, Broad River (South Carolina).

1.4.3 Present Condition of Habitats and Habitat Areas of Particular Concern

1.4.3.1 Coastal Spawning Habitat: Condition and Threats Coastal Spawning

It is reasonable to assume that areas where coastal development is taking place rapidly, habitat quality may be compromised. Coastal development is a continuous process in all states and all coastal areas in the nation are experiencing significant growth. The following section describes particular threats to the nearshore habitats in the South Atlantic that meet the characteristics of suitable spawning habitat for cobia.

One threat to the spawning habitat for cobia is navigation and related activities such as dredging and hazards associated with ports and marinas (ASMFC, 2013). According to the SAFMC (1998), impacts from navigation related activities on habitat include direct removal/burial of organisms from dredging and disposal of dredged material, effects due to turbidity and siltation; release of contaminants and uptake of nutrients, metals, and organics; release of oxygen-consuming substances, noise disturbance, and alteration of the hydrodynamic regime and physical characteristics of the habitat. All of these impacts have the potential to substantially decrease the quality and extent of cobia spawning habitat.

Besides creating the need for dredging operations that directly and indirectly affect spawning habitat for cobia, ports also present the potential for spills of hazardous materials. The cargo that arrive and depart from ports include highly toxic chemicals and petroleum products. Although spills are rare, constant concern exists, since huge expanses of productive estuarine and nearshore habitat are at stake. Additional concerns related to navigation and port utilization are discharge of marine debris, garbage, and organic waste into coastal waters.

Maintenance and stabilization of coastal inlets is of concern in certain areas of the southeastern U.S. Studies have implicated jetty construction to alterations in hydrodynamic regimes, thus, affecting the transport of estuarine-dependent organisms' larvae through inlets (Miller et al., 1984; Miller, 1988).

1.4.3.2 Estuarine Nursery, Juvenile and Sub-adult Habitat: Condition and threats

Coastal wetlands and their adjacent estuarine waters likely constitute primary nursery, juvenile, and sub-adult habitat for cobia along the coast. Between 1986 and 1997, estuarine and marine wetlands nationwide experienced an estimated net loss of 10,400 acres. However, the rate of loss was reduced over 82% since the previous decade (Dahl, 2000). Most of the wetland loss resulted from urban and rural activities and the conversion of wetlands for other uses. Along the southeast Atlantic coast, the state of Florida experienced the greatest loss of coastal wetlands due to urban or rural development (Dahl, 2000). However, the loss of estuarine wetlands in the southeast has been relatively low over the past decade, although there is some evidence that invasion by exotic species, such as Brazilian pepper (*Schinus terebinthifolius*), in some areas could pose potential threats to fish and wildlife populations in the future (T. Dahl, pers. comm.).

Throughout the coast, the condition of estuarine habitat varies according to location and the level of urbanization. In general, it can be expected that estuarine habitat adjacent to highly developed areas will exhibit poorer environmental quality than more distant areas. Hence, environmental quality concerns are best summarized on a watershed level.

Threats to estuarine habitats of the southeast were described in Amendment 2 to the Red Drum FMP (ASMFC, 2002). Due to the cobia's similar dependence on estuarine habitats throughout its early life history, these same threats are likely to impact cobia as well.

Nutrient enrichment of estuarine waters throughout the southeast is a major threat to the quality of estuarine habitat. Forestry practices contribute significantly to nutrient enrichment in the southeast. Areas involved are extensive and many are in proximity to estuaries. Urban and suburban developments are perhaps the most immediate threat to cobia habitat in the southeast. The almost continuous expansion of ports and marinas in the South Atlantic poses a threat to aquatic and upland habitats. Certain navigation-related activities are not as conspicuous as port terminal construction but have the potential to significantly impact the estuarine habitat upon which cobia depend. Activities related to watercraft operation and support pose numerous threats including discharge of pollutants from boats and runoff from impervious surfaces, contaminants generated in the course of boat maintenance, intensification of existing poor water quality conditions, and the alteration or destruction of wetlands, shellfish and other bottom communities for the construction of marinas and other related infrastructure.

Estuarine habitats of the southeast can be negatively impacted by hydrologic modifications. The latter include activities related to aquaculture, mosquito control, wildlife management, flood control, agriculture and silviculture. Also, ditching, diking, draining, and impounding activities associated with industrial, urban, and suburban development qualify as hydrologic modifications that may impact the estuarine habitat. Alteration of freshwater flows into estuarine areas may change temperature, salinity, and nutrient regimes as well as alter wetland coverage. Studies have demonstrated that changes in salinity and temperature can have profound effects in estuarine fishes (Serafy et al., 1997) and that salinity partly dictates the distribution and abundance of estuarine organisms (Holland et al., 1996). Cobia may be similarly susceptible to such changes in the physical regime of their environment.

1.4.3.3 Adult Habitat: Condition and Threats

Threats to the cobia's adult habitat are not as numerous as those faced by postlarvae, juveniles, and sub-adults in the estuarine and coastal waters. Current threats to the nearshore and offshore habitats that adult cobia utilize in the South Atlantic include navigation and related activities, dumping of dredged material, mining for sand and minerals, oil and gas exploration, offshore wind facilities, and commercial and industrial activities (SAFMC, 1998).

An immediate threat is the sand mining for beach nourishment projects. Associated threats include burial of bottoms near the mine site or near disposal sites, release of contaminants directly or indirectly associated with mining (i.e. mining equipment and materials), increases in turbidity to harmful levels, and hydrologic alterations that could result in diminished desirable habitat.

Offshore mining for minerals may pose a threat to cobia habitat in the future. Currently, no mineral mining activities are taking place in the South Atlantic. However, various proposals to open additional areas off the Atlantic coast to seabed mining have been introduced by the Federal Executive and Legislative branches.

Offshore wind farms may also pose a threat to cobia habitat throughout different life stages in the future (ASMFC, 2012). The first US offshore wind farm was established in 2016. Several additional wind farm projects have been proposed, including locations off the US Mid-Atlantic, which could impact cobia habitat.

1.5 IMPACTS OF THE FISHERY MANAGEMENT PROGRAM

1.5.1 Biological and Environmental Impacts

Significant recreational fishery overages of the ACL in 2015 and 2016 raise concerns over the future status of the stock and potential of the stock becoming overfished. Adoption of coastwide management measures can provide flexibility to states while maintaining harvest within the ACL and protecting a portion of the spawning stock. Limits on catch can provide additional protection throughout cobia's geographic range to support a sustained population and fishery.

1.5.2 Social Impacts

This section and the following, *1.5.3 Economic Impacts*, summarize selected impact considerations that are mainly based on social and economic analyses in Chapters 3 and 4 of Amendment 31 to the CMP FMP (see SAFMC, 2018) and Amendment 20B to the CMP FMP (GMFMC and SAFMC, 2014).

In order to understand the possible social impacts that any proposed and/or new rules and regulations may have on participants in any fishery, in-depth community profiles are needed. Very limited applied social science research has been conducted on recreational and commercial fishing communities identified as being linked to Atlantic cobia harvesting. Therefore, adequate information to qualitatively or quantitatively address the possible social impacts of proposed cobia fishery management actions on communities are not currently available.

Regardless, notable social science research completed during the previous decade included a NOAA funded project that employed rapid assessment methods to document the location, type, and history of fishing communities in the South Atlantic region. SAFMC staff worked collaboratively with the University of Florida on a project that described fishing communities in a broad manner (for example, whether the community is characterized mostly by the commercial fishing sector, the for-hire component, the recreational angler component or some combination of these), and linked on-the-ground fieldwork with the collection of secondary data including U.S. Census records, landings, permits, and state information (see Jepson et al., 2005). This research contributed to forming an important historical South Atlantic fishery baseline dataset that has assisted in the measurement of social and economic impacts related to fishery management actions and has also helped to better understand external socioeconomic factors (e.g. demand for coastal waterfront property) influencing South Atlantic fishing communities.

Limited, currently available social impact information includes demographic descriptions of South Atlantic fishing communities (see the SERO (2019) Community Snapshots 10[1]) as well as three sets of 2016 indices generated to judge the potential social vulnerability of Atlantic fishing communities (SAFMC, 2018a). The indices' variables were identified through the literature as being important components that contribute to a community's vulnerability (Jepson and Colburn, 2013; Jacob et al., 2013). While this information is useful in broadly characterizing fishing communities, there is currently no social impact information available that is specific to Atlantic cobia fisheries.

1.5.2.1 Recreational Fishery

The recreational sector of the Atlantic cobia fishery is much larger than the commercial sector, and cobia is an important species for the recreational sector that includes the private angler and for-hire components. Recreational landings estimates indicate that private recreational anglers constitute the dominant component of the fishery (Table 4), and most landings are associated with Virginia and North Carolina (Table 3). Therefore, implementation of Amendment 1 to the cobia FMP is expected to impact the recreational sector. Specifically, it is likely that social impacts would be most significant for private recreational fishermen and related businesses as well as for-hire businesses and their angler customers in Virginia and North Carolina.

Using 2016 data, South Atlantic (excluding Florida) fishing communities were evaluated according to recreational engagement scores, which were based on a factor analysis of several criteria including the number of charter permits and level of recreational fishing infrastructure (SAFMC, 2018). This metric was not specific to cobia, so it was assumed that the overall recreational engagement measure would be generally congruent with engagement specific to cobia. SAFMC (2018) concluded that the South Atlantic communities of Atlantic Beach, Hatteras, Manteo and Morehead City, North Carolina, and Charleston, Hilton Head, Little River and Murrells Inlet, South Carolina all exceeded the 2016 ranking threshold of 1 standard deviation and therefore would "…likely have some dependence upon recreational fishing."

With regard to Virginia recreational fishing communities, SAFMC (2018) noted that recreational fishing communities of Northumberland and Hampton have seen recent increases (e.g. during 2015 and/or 2016) in their cobia harvest. Input from public comments and attendance at public hearings also indicted that Virginia Beach, Virginia, is an important community for recreational cobia harvesting.

[1] https://sero.nmfs.noaa.gov/sustainable_fisheries/social/community_snapshot/index.html

1.5.2.2 Commercial Fishery

The commercial sector has historically operated primarily as a bycatch fishery. The 2019 ACL for the commercial fishery is 50,000 lb from Georgia-New York. Current measures and those proposed in this document essentially maintain status quo for the commercial fishery. Depending on the timing of any closure, social impacts would vary.

Based on a regional quotient (RQ) metric, the SAFMC (2018a) identified and ranked the top 16 coastal communities in terms of their annual commercial landings of cobia within the South Atlantic states using 2010-2016 dealer data aggregated at the community level. The RQ measures how commercial harvest is distributed throughout a region and can be used to identify "top commercial communities". This is helpful in determining which communities might be most affected by changes to commercial cobia management. During the analysis period, the community of Washington, NC, saw a marked increase in its cobia RQ in 2015 and 2016, especially since it had little to no reported landings before 2015. Avon, NC, had a marked decline in their 2014 RQ, followed by an increase in 2015 and 2016. Wanchese, NC, was previously in the top 16 but has dropped out in recent years (2015-2016). In general, most of the Carolinas' commercial fishing communities that engaged in cobia harvesting had a decline in their RQs (SAFMC, 2018). Commercial landings of cobia in Virginia have been increasing recently, though no communities displayed consistently high RQs.

1.5.3 Economic Impacts

1.5.3.1 Recreational Fishery

Consumer spending on various goods and services needed for recreational fishing generates economic activity that spurs direct, indirect and induced economic effects or economic contribution effects[2] that ripple through the region. Estimates of the business activity, i.e. economic contribution effects, associated with recreational angling for Atlantic cobia annually averaged for the 2012-2016 period were approximated by the SAFMC (2018a) using average trip-level impact coefficients (NOAA Fisheries, 2017) and related data provided by the NOAA Fisheries Office of Science and Technology. The SAFMC estimated that the total average annual (2012-2016) economic contribution sales effects (in 2016 dollars) attributable to Atlantic recreational cobia target trips based on aggregating state-level effects for the Carolinas, Georgia and Virginia cobia were approximately $13.0 million and these sales generated about

2 In this section, the term "economic contribution" denotes an economic distributional analysis that estimates the status quo economic contributions (e.g. jobs and household income) to local and/or regional economies (see Watson et al., 2007) due to economic activities such as those associated with recreational or commercial fishing. However, economic contribution analysis results (e.g. total economic contribution sales and income effects) should not be interpreted to represent the net economic impact effects if managed fish species were not available for harvest or purchase (SAFMC, 2018b).

$4.6 million in income and 130 jobs in the recreational harvest sector (SAFMC, 2018a). However, the SAFMC (2018b) noted that these figures were based upon MRIP trip estimates before effort recalibrations took place in 2018. Economic contribution effects may be several times larger if based on recalibrated MRIP effort estimates. Additionally, these estimates may represent lower bounds on the economic activities associated with recreational cobia fishing because expenditures on durable goods were not included (SAFMC, 2018a). Furthermore, as noted by the SAFMC (2018b), aggregating state-level economic contribution estimates to produce a regional four state total most likely underestimates the actual amount of total business activity because state-level economic contribution multipliers do not account for interstate and interregional trading (IMPLAN, 2019).

The Commission currently limits Atlantic cobia recreational harvests to the recreational Atlantic cobia ACL established by the SAFMC (ASMFC, 2017). Upon approval of Amendment 1, the level of recreational harvest allowed by the previous ACL would be maintained as the recreational quota, at least until completion of the next stock assessment. However, if Board actions following a future assessment lead to changes in the recreational quota, this could lead to shifts in benefits for the recreational sector due to changes in the amount or quality of fishing trips. Recreational sector quota changes might also lead to changes in local economic contribution effects due to shifts in Atlantic cobia fishing-related expenditures by recreational anglers and individuals in the for-hire component (e.g., local spending on lodging, restaurant meals, groceries, etc.).

While SAFMC estimates of cumulative economic effects of previous closures of the Atlantic cobia fishery in federal waters are not available, it is apparent that these in-season closures had a proportionally more negative economic effect on recreational and related fishing communities in Georgia and South Carolina compared to those found further north (SAFMC, 2018a). If Amendment 1 reduces the likelihood or frequency of fishery closures in federal waters, it could possibly generate additional beneficial effects in the social and economic environments of these states.

1.5.3.2 Commercial Fishery

The commercial fishery for Atlantic cobia is small, though landings have been increasing in Virginia recently (see Table 1). Dockside prices (in 2017 $) are typically between $2/lb and $3/lb and total dockside revenues for the fishery are usually less than $200,000 annually, although they did exceed $200,000 (in 2017 $) in 2015 and 2016. Commercial vessels landing Atlantic cobia rely on other species for the majority of their revenues, with cobia accounting for less than 1% of annual all-species revenues (in 2016 $) on average for vessels landing cobia in Georgia, South Carolina, and North Carolina, from 2012 through 2016 (SAFMC 2018a). Using an input-output model developed to look at economic impacts of the seafood sectors broadly, SAFMC estimates that the commercial fishery for Atlantic cobia contributes 21 jobs, $1.6 million in sales impacts, and $0.8 million in value added impacts to the regional economy (SAFMC 2018a).

If Commission Atlantic cobia commercial fishery management measures implemented in the FMP are similar to the current federal CMP FMP regulations, the SAFMC (2018a) concluded that there should be no substantial near-term changes in commercial fishery economic value and economic impact effects compared to the current federal management regime. However, the SAFMC noted that it was uncertain how future Commission regulations might affect Atlantic cobia commercial harvest in federal waters (SAFMC, 2018a), hence making the distribution, magnitude, and direction (negative or positive) of possible economic effects unclear.

1.5.4 Other Resource Management Efforts

1.5.4.1 Artificial Reef Development/Management

Approximately 120,000 acres (155 nm^2) of ocean and estuarine bottom along the South Atlantic coast have been permitted for the development of artificial reefs (ASMFC, 2002). The Georgia Department of Natural Resources is responsible for the development and maintenance of a network of man-made reefs both in estuarine waters and in the open Atlantic Ocean. Funding for the artificial reef program is provided by Federal Aid in Sport Fish Restoration, fishing license revenues, and private contributions. To date, there are 15 reefs within the estuary proper, which are constructed of a variety of materials including concrete rubble, metal cages, and manufactured reef units. These provide habitat for juvenile cobia and other species of recreationally important fishes. In 2001, three "beach" reefs were constructed in locations within Georgia's territorial waters just off the barrier island beaches. These are experimental in nature, but should provide some habitat for juvenile and adult cobia. There are 19 man-made reefs in the U.S. Exclusive Economic Zone (EEZ) ranging from depths of 40 to 130 feet. These reefs are constructed of a variety of materials including surplus vessels, concrete rubble, barges, bridge spans, and manufactured reef units. Both juvenile and adult cobia are known to use these reefs.

New Jersey has also developed and invested in an artificial reef program, with the state agency involved since 1984. Similarly, Delaware has invested in an artificial reef program, with 14 reef sites within Delaware Bay. Artificial reef construction is especially important in the Mid-Atlantic region, where near shore bottom is usually featureless sand or mud.

States should continue support for habitat restoration projects, including oyster shell recycling and oyster hatchery programs as well as seagrass restoration, to provide areas of enhanced or restored bottom habitat.

1.5.4.2 Bycatch

Cobia are uncommon bycatch components in most U.S. South and Mid-Atlantic fisheries. Mortalities resulting from cobia released from varying depths in the hook and line fisheries and regulatory discards from the large mesh gill fisheries in North Carolina are unknown.

2.0 GOALS AND OBJECTIVES

2.1 HISTORY OF MANAGEMENT

The Commission's Interstate Fishery Management Plan for Atlantic Migratory Group Cobia (FMP) was approved in November 2017 and first implemented in the 2018 fishing year (ASMFC, 2017). This FMP established the Commission's first involvement in Atlantic cobia management. The FMP was designed to complement federal management of Atlantic cobia by the SAFMC through the CMP FMP. Complementary measures mirrored by the FMP included vessel, bag/possession, and minimum size limits. Under Commission management, states were allowed to establish measures up to, but not exceeding, several measures that matched those of the CMP FMP. The Commission's FMP also established a Recreational Harvest Limit (RHL), derived from the federal Annual Catch Limit. The RHL is allocated among non-*de minimis* states (those harvesting greater than one percent of the coastwide recreational harvest) as state harvest targets (Table 8). Average landings over 3-year periods are evaluated against harvest targets to determine whether states can maintain their current recreational vessel limit and season or must adjust these measures to achieve their target. The FMP also established *de minimis* criteria and management options for the recreational fishery.

Table 8. State recreational harvest targets (lb) as established through the Commission's Cobia FMP. These targets were set based on recreational landings estimated with effort estimates from the Coastal Household Telephone Survey (CHTS). Therefore, these targets should only be compared to CHTS landings estimates (Appendix I, Table A2).

State	Recreational Harvest Target (lb)
VA	244,292
NC	236,316
SC	74,885
GA	58,311

2.2 PURPOSE AND NEED FOR ACTION

Currently, the Commission's FMP is designed for complementary management with the CMP FMP, with several management measures dependent upon the CMP FMP or SAFMC management. Since Regulatory Amendment 31 to the CMP FMP was approved and the Final Rule's implementation began on March 21, 2019 (NOAA, 2019), Atlantic cobia is no longer managed by a federal FMP. Additionally, this means that the SAFMC will no longer be recommending management measures for Atlantic cobia in federal waters to NOAA Fisheries.

Previous management relied on the SAFMC to set the ACL, then adapted that figure to the needs of Commission management. However, with the transition to sole management by the Commission comes the responsibility of specifying acceptable harvest levels. A harvest specification process allows such levels to be set in an expedient manner, allowing a quick response to significant events such as stock assessments, but also within bounds specified in

this amendment. Certain aspects of management that are outside the specification process would require longer processes with more opportunities for public input.

2.3 GOAL

The goal of Amendment 1 is to provide for an efficient management structure that implements coastwide management measures*, providing equitable and sustainable access to the Atlantic cobia resource throughout the management unit* in a timely manner.

Italicized language is a recommended amendment from the Cobia Plan Development Team to language in the FMP.

2.4 OBJECTIVES

The following objectives are intended to support the goal of Amendment 1.

1) Provide a flexible management system to address future changes in resource abundance, scientific information, and fishing patterns among user groups or area.
2) *Implement management measures that allow stable, sustainable harvest of Atlantic cobia in both state and federal waters.*
3) *Establish a harvest specification procedure that will allow flexibility to respond quickly to stock assessment results or problems in the fishery, while also providing opportunities for public input on potential significant changes to management.*
4) Promote continued, cooperative collection of biological, economic, and social data required to effectively monitor and assess the status of the cobia resource and evaluate management efforts.
5) Manage the cobia fishery to protect both young individuals and established breeding stock.
6) Develop research priorities that will further refine the cobia management program to maximize the biological, social, and economic benefits derived from the cobia population.

Italicized language is a recommended amendment from the Cobia Plan Development Team to language in the FMP.

2.5 MANAGEMENT UNIT

The management unit is defined as the cobia (*Rachycentron canadum*) resource from Georgia through New York within U.S. waters of the northwest Atlantic Ocean, from the U.S. Atlantic coastal estuaries eastward to the offshore boundaries of the EEZ. The selection of this management unit is based on genetic analysis and tag-recapture data described in *Section 1.2.1.1*.

2.5.1 Management Area

The management area is the Atlantic coast distribution of the resource from Georgia through New York.

2.6 DEFINITION OF OVERFISHING

Prior to this amendment and Amendment 31 to the CMP FMP, the CMP FMP specified that overfishing is occurring when current fishing mortality ($F_{Current}$), defined as the geometric mean of the 3 most recent annual estimates of F, exceeds the maximum fishing mortality threshold (MFMT), set at the fishing mortality that achieves maximum sustainable yield (MSY) (F_{MSY}) (SAFMC, 2011). The CMP FMP also specified that the stock is overfished when the current spawning stock biomass ($SSB_{Current}$), defined as the geometric mean of the 3 most recent annual estimates of SSB, is less than the minimum stock size threshold (MSST), defined as MSST=[(1-M) or 0.5, whichever is greater]*B_{MSY}, where M is natural mortality and B_{MSY} is the biomass at which MSY is achieved (SAFMC, 2011). Estimates for fishing mortality, biomass, and threshold levels are determined through a stock assessment. These levels were unknown at the time of CMP Amendment 18, but were updated following the most recent stock assessment, SEDAR 28, through CMP Amendment 20B (GMFMC and SAFMC, 2014). Through Amendment 1, these overfished and overfishing definitions shall be maintained until the Board accepts new definitions through the process defined below.

Although management of Atlantic cobia will occur solely through Amendment 1, without any complementary SAFMC FMP, stock assessments will primarily continue to be conducted through the Southeast Data, Assessment, and Review (SEDAR) process. The next peer-reviewed assessment is scheduled for completion early in 2020.

To allow flexibility in responding to assessment results, Amendment 1 allows for the incorporation of new, peer-reviewed stock status determination criteria (both the methods used to set reference points and the reference point values), when available, through Board action. This allows flexibility to incorporate changes to the definitions of MFMT or MSST as the best scientific information becomes available, while maintaining objective and measurable status determination criteria for identifying when the stock is overfished. Similar actions have been taken with other Commission-managed species' FMPs (e.g., Addendum XIX to the FMP for Summer Flounder, Scup and Black Sea Bass, Addendum XVI to the FMP for American Lobster, and Amendment 3 to the FMP for Northern Shrimp). To attain this information, stock assessment and peer review terms of reference will include evaluations of existing or proposed biological reference point definitions and values (if estimable).

This action allows for the incorporation of new, peer-reviewed stock status determination criteria as soon as it becomes available, through the harvest specification process (*Section 4.1*), allowing timely use of the best available scientific information in the management of Atlantic cobia. This action does not have a direct influence on fishing effort or fishery removals but, instead, facilitates use of the most current scientific information available to define the status determination criteria for the stock, so that the stock can be managed to prevent overfishing and such that it is not overfished.

The following describes the potential sources of peer-reviewed scientific advice on status determination criteria and the current process of how that scientific advice will move forward in the development of management advice through the Board's specification process.

Specific definitions or modifications to the status determinations criteria and their associated values would result from the most recent peer-reviewed stock assessments and their panelist recommendations. The primary peer-review processes for Atlantic cobia that may be used are:

- The SEDAR Peer Review process, which is the primary mechanism used in the Southeast Region at present to review scientific stock assessment advice, including status determination criteria, for Atlantic cobia. As part of this process, the Commission appoints scientists to serve as reviewers along with those appointed by SEDAR.
- The Commission's Independent External Peer Review process, which follows a similar process to SEDAR in contracting independent experts to review scientific stock assessment advice, including status determination criteria, but allows the Commission more flexibility in determining the timing of a benchmark assessment.

The above list of peer review entities does not preclude groups from bringing independent stock assessments performed for the Atlantic cobia stock forward to the attention of the Commission. The Commission may recommend that these independent reviewed stock assessments pass through either of the peer review processes above, to ensure that sufficient peer review of the information occurs before the scientific advice can be used in the management process.

The SEDAR and Commission review processes both operate with a goal of reaching consensus. If consensus opinion of the peer review is to maintain current definitions of status determination criteria for Atlantic cobia, values produced by current criteria definitions may be updated to reflect the most recent data without any specific Board action, as using updated values is implied in this provision of Amendment 1. In this case, the scientific advice can then move forward such that management advice can be developed. If consensus opinion of the peer review is to recommend changes or different definitions of the status determination criteria and the panelists reach consensus as to how these status determination criteria should be changed, this advice may also move forward without any specific Board action such that management advice can be developed. Under these first two potential scenarios, consensus has been reached. Therefore, the scientific advice moving forward to the Board's management advisory groups should be clear.

A third potential scenario is that peer review scientific advice with respect to the incorporation of status determination criteria are split (consensus is not reached) or uncertain recommendations are provided (weak consensus). In this case, the scientific advice provided by the reviewers may be conflicting or may not be specific enough to provide adequate guidance as to how the MFMT or MSST should be defined. Additionally, the resulting management advice that should be developed from these changes may be unclear. Under these circumstances, the

Board may engage the Commission's Assessment Science Committee (ASC) to review the information and recommendations provided by the peer review panel and Technical Committee. Based on the terms of reference provided to the ASC, they may prepare a consensus report clarifying the scientific advice for the Board as to what the status determination criteria should be. At that point, the scientific advice on how the status determination criteria should be defined will be clear and can move forward such that management advice can be developed.

3.0 MONITORING PROGRAM SPECIFICATION

In order to meet the goals and objectives of Amendment 1, the collection and maintenance of quality data is necessary.

Updates from the FMP have been made to monitoring sections to reflect the most up-to-date information about the Atlantic cobia fishery.

3.1 SUMMARY OF MONITORING PROGRAMS

The FMP included no requirements regarding fishery-dependent monitoring programs, but all state fishery management agencies were encouraged to pursue full implementation of the standards of the Atlantic Coastal Cooperative Statistics Program (ACCSP). The Management Board recommended a transitional or phased-in approach be adopted to allow for full implementation of the ACCSP standards. Participation by program partners in the ACCSP does not relieve states from their responsibilities in collating and submitting harvest/monitoring reports to the Commission as required under the FMP.

3.1.1 Commercial Catch and Landings Program

The ACCSP's standard for commercial catch and effort statistics is mandatory, trip-level reporting of all commercially harvested marine species, with fishermen and/or dealers required to report standardized data elements for each trip by the tenth of the following month.

The current commercial ACL was set by the South Atlantic Fishery Management Council's (SAFMC) CMP FMP Amendment 20B; this was complemented by the ISFMP for Atlantic cobia. Quota monitoring is done by the NOAA Southeast Regional Office and landings are updated on a weekly basis. Monitoring data can be found at https://www.fisheries.noaa.gov/southeast/commercial-fishing/2019-preliminary-south-atlantic-commercial-landings.

Starting in 2020, due to the removal of the Atlantic cobia stock from SAFMC jurisdiction, all commercially non-*de minimis* states will be required to monitor cobia landings in order to maintain sustainable cobia harvest and minimize the potential for overages.

3.1.2 Recreational Catch and Effort Program

3.1.2.1 Recreational Fishery Catch Reporting Process

The Marine Recreational Information Program (MRIP) contains estimated Atlantic cobia catches from 1981-2018. The MRIP evolved from the Marine Recreational Statistics Survey (MRFSS; 1981-2003) and included improvements in survey and estimation methodologies to remove sources of bias. The MRFSS and MRIP programs were simultaneously conducted in 2004-2006 and this information was used to calibrate past MRFSS recreational harvest estimates against MRIP recreational harvest estimates.

The MRIP is a national program that uses several surveys to obtain catch and effort data at a regional level. The Access Point Angler Intercept Survey (APAIS) provides the catch rates and species composition from anglers fishing in estuarine or marine waters (not freshwater). Anglers who have completed a fishing trip are interviewed to gather catch and demographic data. Sampling is separated by fishing mode (charter boat, private/rental boat, beach/bank and man-made structures), area fished, and wave (two-month period).

The MRIP implemented the Fishing Effort Survey (FES) in 2018, an improved methodology to address several concerns with the prior survey (Coastal Household Telephone Survey) including under-coverage of the angling public, declining number of households using landline telephones, reduced response rates, and memory recall issues. The number of fishing households and the numbers of fishing trips taken are determined by FES. The data from the two surveys are combined to provide estimates of the total number of fish caught, released, and harvested. Additionally, information is collected on the weight of the harvest, total number of trips, and the number of people participating in marine recreational fishing. Improvements within APAIS and the adoption of FES have required calibrations of pre-existing data to standardize estimates and as such all recreational data presented herein represent the latest techniques. For additional information on the MRIP see https://www.fisheries.noaa.gov/topic/recreational-fishing-data.

Additionally, Virginia has a Cobia Recreational Permit that is required for all recreational fishermen (private and for-hire). Permit holders are required to report all trips, both those that resulted in catches and the zero-catch trips as well. Catch and effort information is captured by the reporting forms. This is permit was created to supplement the MRIP sampling.

3.1.2.1.1 *For Hire Fishery Catch-Reporting Process*

The ACCSP has selected the NOAA Fisheries For-Hire Survey as the preferred methodology for collecting data from charter boats and headboats (partyboats), also called the “for-hire” component. The For-Hire Survey is similar to the MRIP. The independent survey components of the For-Hire Survey include: 1) telephone survey to collect fishing effort data from vessel

representatives; 2) an effort validation survey; 3) an access-site intercept survey for catch data; and 4) at-sea samplers on headboats for catch data. Using the data collected through these surveys, NOAA Fisheries generates catch and effort estimates for for-hire fisheries.

The vessel effort survey is a mandatory survey for the for-hire vessels which uses a coastwide directory of such vessels as the sampling frame for for-hire fishing effort. The directory is continually updated as intercept and telephone interviewers identify changes in the fleet. Optimal sampling levels will be determined following evaluation of the Atlantic coast For-Hire Survey results from the first three years. Until optimal sampling levels are determined, a minimum of 10% of for-hire vessels (or three charter boats and three headboats, whichever is greater), will be randomly sampled each week in each state. A vessel representative, usually the captain, is called and asked to provide information on the fishing effort associated with that vessel during the previous week. Vessel representatives are notified in advance that they have been selected for sampling and an example form is provided. To be included in the sample frame for particular wave, a vessel record must include: 1) at least one vessel representative's telephone number; 2) the name of the vessel or a vessel registration number issued by a state or the U.S. Coast Guard; 3) the county the boat operates from during that wave, and 4) designation as either a charter or guide boat (both called "charter") or headboat.

To validate the self-reported effort data collected through the vessel telephone survey, field samplers periodically check access sites used by for-hire vessels to observe vessel effort. Interviewers record the presence or absence of a for-hire vessel from its dock or slip, and if the vessel is absent, they try to ascertain the purpose of the trip. Those observations are compared to telephone data for accuracy and to make any necessary corrections.

3.1.2.1.1.1 Charter Boat Sampling

Vessels that meet the ACCSP definition of a charter boat, "typically hired on a per trip basis," are sampled for catch data through an intercept site survey of anglers similar to the MRIP. The intercept survey has been ongoing since 1981.

Some partners collect for-hire effort data using Vessel Trip Reports (VTR), which are mandatory for some vessels and contain all minimum data elements collected by the For-Hire Survey. In areas where the survey runs concurrently with VTR programs, captains selected for the weekly telephone survey are permitted to fax their VTRs in lieu to being interviewed by phone.

Additionally, South Carolina requires charter boats to submit logbook trip reports to the state on a monthly basis. These logbooks capture catch and effort information. South Carolina is working to develop validation methods for self-reported data.

3.1.2.1.1.2 Headboat Sampling

Catch and effort data for federally permitted headboats operating in the South Atlantic (North Carolina – Georgia) is monitored through the Southeast Region Headboat Survey conducted by the Southeast Fisheries Science Center. Vessel operators are required to file weekly electronic reports for all trips to report catch and effort information. Dockside samplers collect biological samples from the catches, which supplement the samples collected by the at-sea observers.

3.1.2.1.1.3 South Atlantic Mandatory Reporting for Federally-Permitted Charter Vessels

In December 2016, the South Atlantic Fishery Management Council approved an amendment that, if implemented, would require weekly electronic reporting of all charter vessels operating under a South Atlantic federal for-hire permit. The amendment proposes to implement the same reporting requirements for federally-permitted charter vessels in the snapper grouper, dolphin wahoo, and coastal migratory pelagics (mackerel and cobia) fisheries that currently exist for federally-permitted headboats. A federal permit is required for all for-hire vessels (charter and headboats) operating in the exclusive economic zone (federal waters, more than 3 miles offshore). While Atlantic cobia are no longer part of the CMP FMP, they may be caught along with the affected SAFMC-managed fisheries and, thus, reported through this program. Mandatory electronic reporting for charter vessels is expected improve the data available for management and stock assessments, improve the accuracy and timeliness of data collection, and allow fishery managers to better monitor landings and discards, and more accurately assess the impacts of regulations on the for-hire industry fishing in federal waters. Currently, the amendment has been approved by the SAFMC and is under review by NOAA Fisheries and the US Secretary of Commerce.

3.2 BIOLOGICAL INFORMATION

The ACCSP has set standards for how biological data should be collected and managed for commercial, recreational, and for-hire fisheries. Trained field personnel, known as port agents or field samplers, should obtain biological samples. Information should be collected through direct observation or through interviews with fishermen. Detailed fishery statistics and/or biological samples should be collected at docks, unloading sites, and fish houses. Biological sampling includes species identification and disposition; individual lengths and weights; extraction of hard parts including otoliths; and tissue samples such as gonads, stomachs, fin clips, and scales.

Commercial fishery biological samples are collected by federal port agents through the Trip Interview Program (TIP). Some states supplement TIP with state sampling programs; these states are encouraged to continue with these programs.

All states are encouraged to continue sampling programs, such as freezer collection programs, that collect biological information. Information from these programs may be reviewed by the TC and Board on a case-by-case basis for use in management decisions. Examples of current

programs include the Virginia Marine Resource Commission's Marine Sportfish Collection Project, North Carolina Division of Marine Fisheries Carcass Collection Program, South Carolina's Freezer Fish Program, and Georgia's Marine Sportfish Carcass Recovery Project.

Additionally, states are encouraged to continue to take biological samples from cobia encountered incidentally during fishery independent sampling to add to information on life history, stock ID, and individual weight.

3.3 SOCIAL AND ECONOMIC INFORMATION

Data on a number of variables relevant to social and economic dimensions of the cobia fishery are collected through existing ACCSP data collection programs and the MRIP; however, no explicit mandates to collect socioeconomic data for cobia currently exist. In addition to pounds landed, commercial cobia harvesters and dealers may report ex-vessel prices or value, fishing and landing locations, landing disposition, and a variety of measures capturing fishing effort. The MRIP regularly collects information on recreational fishing effort and landings, and occasionally gathers socioeconomic data on angler motivations and expenditures.

3.4 OBSERVER PROGRAMS

No specific observer programs are in place to monitor the cobia fishery. Observer programs already in place, whether state or federal, may observe capture of cobia in other monitored fisheries or specific gear types. A review of these programs should take place.

3.5 ASSESSMENT OF STOCK CONDITION

Although management of Atlantic cobia will occur solely through Amendment 1, without any complementary SAFMC FMP, stock assessments will primarily continue to be conducted through the Southeast Data, Assessment, and Review (SEDAR) process. Every five years, the Atlantic cobia stock assessment will be reviewed to determine whether stock assessment or update is necessary. The Commission, through participation in the SEDAR Steering Committee, will coordinate with partnering organizations to schedule SEDAR assessments. This schedule may be modified as needed to incorporate new information and in consideration of the Atlantic cobia stock.

Stock assessments may also be conducted through the Commission's assessment process by the Cobia Stock Assessment Subcommittee (SAS, *Section 4.8.5*). For this process, the TC and Advisory Panel (AP) will meet to review the stock assessment and all other relevant data sources. The stock assessment report shall follow the general outline as approved by the Interstate Fisheries Management Program Policy Board (ISFMP Policy Board) for all Commission-managed species. In addition to the general content of the report as specified in the outline, the stock assessment report may also address the specific topics detailed in the following sections. Specific topics in the stock assessment may change as the SAS continues to provide the best model and metrics possible to assess the Atlantic cobia stock.

3.5.1 Assessment of Annual Recruitment

No programs currently collect data necessary to assess annual recruitment of cobia.

The original FMP (ASMFC, 2017) recommended examination of possible surveys from which Atlantic cobia abundance indices could be developed, as these indices would be valuable for informing future stock assessments. Pre-data workshop calls for SEDAR 58 cobia assessment did not identify any new data sources for recruitment.

3.5.2 Assessment of Spawning Stock Biomass

SEDAR 28 (2013) provides the most current information on spawning stock biomass. While the stock is not currently considered overfished, the 2013 stock assessment does indicate declines in biomass over the last few years of the assessment (terminal year: 2010). New information should be revealed by SEDAR 58, scheduled for completion in early 2020.

3.5.3 Assessment of Fishing Mortality Target and Measurement

SEDAR 28 (2013) provides the most current information on fishing mortality. The stock is not currently considered to be undergoing overfishing. Recent overages of the ACL for both the commercial and recreational sectors have raised concerns. New information should be revealed by SEDAR 58, scheduled for completion in early 2020.

3.6 STOCKING PROGRAM

The Virginia Institute of Marine Science (VIMS) began an experimental stocking program in the Chesapeake Bay in 2003 to explore stock enhancement and study juvenile movement and habitat utilization.[3] Juvenile cobia were tagged and released into the Chesapeake Bay in 2003, 2006, 2007, and 2008, with more than 300 tagged releases occurring in those first two years. Recapture information indicated habitats ranged from 1-4 m in depth and consisting of sandy and grass-bed bottoms. It is unclear whether this program had any effect on the population of cobia in Virginia, although it is assumed to have had minimal impact due to the small number of releases.

South Carolina has an experimental stock enhancement program designed to evaluate the methodology necessary for augmenting wild populations. Experiments have been designed to determine the best size and time of year to stock cobia in coastal rivers focusing on augmentation of the distinct population segment of cobia in South Carolina. Locally-caught brood stock are conditioned to spawn in recirculating seawater systems using temperature and photoperiod conditioning and hormone implantations to facilitate final oocyte maturation.

[3] https://www.vims.edu/research/departments/fisheries/programs/tagging_research/cobia/

Multiple years of spawning and grow out have occurred, and more than 50,000 (60-350 mm TL) cobia have been stocked in the Colleton and Broad rivers of Port Royal Sound. All fish are genetically identifiable to broodstock group and can be identified in the catch and distinguished genetically from wild-spawned fish. Cobia tissue samples collected from charter boat captains and from carcasses collected at tournaments and cooperating recreational anglers show that as much as 50% of the catch from the 2007 year-class were from hatchery releases and that these animals have persisted in the catch each year since release. This research has demonstrated the application of stock enhancement as an additional management tool for cobia. In addition to research on production of animals, the SCDNR has developed predictive individual-based genetic models to determine the appropriate number of cobia that should be produced and stocked each year in order to grow the population while minimizing any negative impact on the genetic health of the wild population.

3.7 BYCATCH REDUCTION PROGRAM

Bycatch is defined as "portion of a non-targeted species catch taken in addition to the targeted species. It may include non-directed, threatened, endangered, or protected species, as well as individuals of the target species below a desired or regulatory size" (ASMFC, 2009). Bycatch can be divided into two components: incidental catch and discarded catch. Incidental catch refers to retained or marketable catch of non-targeted species, while discarded catch is the portion of the catch returned to the sea because of regulatory, economic, or personal considerations.

The recreational cobia fishery is largely a directed fishery with bycatch occurring in fisheries directed towards other species. Mortality associated with regulatory discards of undersized cobia or fish taken after the bag limit is reached is largely unknown but likely varies based on depth caught and methods used to boat the catch. Several ongoing tagging studies will aid in estimating survivability.

The commercial cobia fishery tends to be a bycatch fishery in the hook-and-line and large mesh gill net fisheries. Regulatory discards do occur, but the mortality associated with those discards varies with gear. Juvenile cobia have been documented as bycatch in shrimp trawls off the Atlantic coast, although this is not a frequent occurrence. From 1998-2010, only five cobia were observed from approximately 1,700 shrimp nets and only three of the five were within the stock boundary (SEDAR, 2013). As of Amendment 2 to the federal Shrimp Fishery Management Plan for the South Atlantic Region (SAFMC, 1996), all shrimp trawlers in the South Atlantic are required to use bycatch reduction devices.

3.8 HABITAT PROGRAM

Particular attention should be directed toward cobia habitat utilization and habitat condition (environmental parameters). A list of existing state and federal programs generating environmental data such as sediment characterization, contaminant analysis, and habitat coverage (marsh grass, oyster beds, submerged aquatic vegetation) should also be produced and updated as new information arises. Habitats utilized by cobia range from the middle

portions of estuaries and coastal rivers out to and likely beyond, the shelf break. Thus, virtually any study generating environmental data from estuarine or coastal ocean systems could be of value.

4.0 MANAGEMENT PROGRAM

Several aspects of Atlantic cobia management are subject to Board review in this Amendment. Nine issues are specified below to allow for public comment and Board decisions on these issues. Issues are highlighted in this draft for emphasis. Listed options have been developed and recommended to the Board by the Cobia Plan Development Team (PDT), but do not necessarily preclude additional options from being developed or accepted by the Board. Six of these issues include multiple options, while the others (noted with the issue number) include only one option recommended for consideration by the PDT.

4.1 HARVEST SPECIFICATION PROCESS

Issue 1

Options

a. The coastwide total harvest quota, vessel limits, possession or bag limits, minimum size limits, and commercial closure triggering mechanism may be specified by Board action for up to two years. Subsequent harvest specification would occur for implementation after expiration of the previous specification (up to two years apart) or following a completed stock assessment.

b. The coastwide total harvest quota, vessel limits, possession or bag limits, minimum size limits, and commercial closure triggering mechanism may be specified by Board action for up to three years. Subsequent harvest specification would occur for implementation after expiration of the previous specification (up to three years apart) or following a completed stock assessment.

c. The coastwide total harvest quota, vessel limits, possession or bag limits, minimum size limits, and commercial closure triggering mechanism may be specified by Board action for up to four years. Subsequent harvest specification would occur for implementation after expiration of the previous specification (up to four years apart) or following a completed stock assessment.

For all options, in years when harvest specifications are conducted, they will occur no later than the Fall Board Meeting, and resulting measures will be implemented in the following year.

4.2 SECTOR QUOTA ALLOCATION

Issue 2 (No alternatives recommended by the PDT)

The recreational quota will be 92% of the coastwide total harvest quota set through Board specification. The commercial quota will be 8% of the coastwide total harvest quota set through Board specification. These allocation percentages were derived from those previously in place through the CMP FMP. These percentages may be changed in the future through an addendum to this amendment.

4.3 RECREATIONAL FISHERY MANAGEMENT MEASURES

4.3.1 Size Limit

All states shall maintain a recreational minimum size limit of 36 inches FL. A total length equivalent may be considered by the TC and Management Board.

4.3.2 Bag Limit

All states shall maintain a 1 fish per person recreational bag limit.

4.3.3 Vessel Limit

All states shall maintain a recreational daily vessel limit, not to exceed 6 fish per vessel.

4.3.4 Seasons and Allocations

Management of the coastwide recreational quota shall be accomplished by state-specific seasons and allocations. One percent of the recreational quota shall be set aside to account for harvests in *de minimis* states.

State-defined seasons must adhere to state shares (harvest targets) of the coastwide recreational quota. Percentage allocations are based on states' percentages of the coastwide historical landings in numbers of fish, derived as 50% of the 10-year average landings from 2006-2015 and 50% of the 5-year average landings from 2011-2015. Table 9 shows landings used to develop percentage allocations. Numbers of fish are used for allocation percentages to eliminate confusion from differences in average weights applied to numbers data by the MRIP and Southeast Fishery Science Center (SEFSC). Table 10 shows state allocation percentages of the recreational quota, including a one percent set aside that accounts for landings in states with *de minimis* status for their recreational fisheries. These percentages would be used to determine state allocation percentages regardless of whether pounds or numbers of fish are used to evaluate compliance.

Table 9. Average AMG Cobia recreational landings in numbers (n) from Georgia through Virginia for establishing soft recreational harvest targets as an average of the 5-year and 10-year time periods (5-yr/10-yr Average), 2011-2015 and 2006-2015. Data Source: SEFSC (with headboat), queried 2017.

State	5-yr/10-yr Average
Georgia	n = 2,298
South Carolina	n = 2,935
North Carolina	n = 9,273
Virginia	n = 9,589
Total	n = 24,095

Table 10. Allocation percentages for Atlantic cobia by state, with recognition of 1% of the quota being set aside for recreational harvest in *de minimis* states, based on percentages derived from Table 9. State allocation percentages are the same as those found in Table 10 of the Cobia FMP (ASMFC, 2017), except with the inclusion of the 1% *de minimis* set aside from the total recreational quota.

State	Allocation Percentage
GA	9.4%
SC	12.1%
NC	38.1%
VA	39.4%
De Minimis	1.0%
Total	100%

4.3.5 Evaluation of Landings against State Harvest Targets and Overage Response

Issue 3 includes text that more clearly specifies the process of executing landings evaluations and corresponding responses, but follows a similar overall process as that defined in the original FMP. This additional text is shown in bold in this draft and subject to Board review.

Issue 3 (No alternatives recommended by the PDT)

The following language describing the landings evaluation process and response to an overage is similar in concept to what was included in the FMP. However, additional details are included, which further clarify the implementation protocol with consideration of the new harvest specification process (*Section 4.1*).

Recreational landings will be evaluated against state recreational harvest targets at the same time (i.e., in the same meeting) as Board specification of harvest. Recreational landings for each non-*de minimis* state will be evaluated against that state's target as an average of annual landings. **The timeframe for this average will only include years that had the same**

recreational season and vessel limit. The timeframe will include the most recent years with the same season and vessel limit. If the same season and vessel limit have been in place for at least three years, the timeframe will include the three most recent years under these regulations (a rolling average). If the same season and vessel limit have been in place for less than three years, the timeframe will include all years under these regulations.

The terminal year of the evaluated time period will be the year before the evaluation and specification processes are conducted, e.g., 2019 would be the terminal year for data used in an evaluation conducted in 2020, coinciding with a specification of regulations for 2021-2023.

If a state's averaged recreational landings exceed its annual recreational harvest target, that state must adjust its recreational vessel limit or season to reduce harvest, such that its average landings over the following period of specified harvest will achieve the state recreational harvest target.

States reporting a **consistent** under-harvest during an evaluation time period **of at least 3 years** may present a plan to extend seasons or increase vessel limits, if desired, to allow increased harvests that will not exceed the harvest target.

Changes to management measures for states with overages or states that wish to liberalize management measures must be reviewed by the TC and approved by the Management Board prior to implementation. A hypothetical example of several potential evaluation and response scenarios is depicted in Table 11.

Allocation of the recreational quota may be reevaluated by the Management Board if a recreational *de minimis* state exceeds the recreational *de minimis* landings threshold. **Reallocation of the recreational quota among states may be accomplished through an addendum to Amendment 1.**

Table 11. A hypothetical example timeline for a state with a recreational harvest target of 100,000 lb. Evaluation years depict examples of an achieved target (2021), overharvest (2024), short-term underharvest (2027), and long-term underharvest eligible to apply for more liberal measures (2030). Rows with the same shading have the same season and vessel limit regulations. Evaluations occur in August-October, before harvest data for the current year is available.

	Year	Vessel Limit/Season	Harvest	Evaluation Status & Specification
Harvest Target: 100,000 lb	2018	Vessel Limit: 4 fish Season: June 1-Aug. 30	110,000	Not evaluated
	2019	Vessel Limit: 4 fish Season: June 1-Aug. 30	90,000	Not evaluated
	2020	Vessel Limit: 4 fish Season: June 1-Aug. 30	95,000	Not evaluated
	2021	Vessel Limit: 4 fish Season: June 1-Aug. 30	105,000 lb	Evaluated: Achieved target in **2018-2020**. Regulations set for 2022-2024.
	2022	Vessel Limit: 4 fish Season: June 1-Aug. 30	115,000 lb	Not evaluated
	2023	Vessel Limit: 4 fish Season: June 1-Aug. 30	95,000 lb	Not evaluated
	2024	Vessel Limit: 4 fish Season: June 1-Aug. 30	110,000 lb	Evaluated: Over target by average of 5,000 lb per year in **2021-2023**. Required reduction of season or vessel limit. Regulations set for 2025-2027.
	2025	Vessel Limit: 4 fish Season: June 10-Aug. 30	80,000 lb	Not evaluated
	2026	Vessel Limit: 4 fish Season: June 10-Aug. 30	75,000 lb	Not evaluated
	2027	Vessel Limit: 4 fish Season: June 10-Aug. 30	85,000 lb	Evaluated: Achieved target in **2025-2026** (different regulations in 2024). Regulations set for 2028-2030.
	2028	Vessel Limit: 4 fish Season: June 10-Aug. 30	65,000 lb	Not evaluated
	2029	Vessel Limit: 4 fish Season: June 10-Aug. 30	75,000 lb	Not evaluated
	2030	Vessel Limit: 4 fish Season: June 10-Aug. 30	70,000 lb	Evaluated: Achieved target in **2027-2029**. May submit liberalized measures for TC and Board review, for implementation in 2031. Regulations set for 2031-2033.

4.3.6 Units for Recreational Landings, Quotas, and Targets

Issue 4

Options

a. (Status Quo) Recreational landings, quotas, and targets will be evaluated and set in units of pounds.

b. Recreational landings, quotas, and targets will be evaluated and set in units of numbers of fish. The recreational quota and harvest targets will be converted to numbers of fish by dividing poundage amounts by the average of the three most recent annual average weights for cobia landed recreationally, as determined by data from the Marine Recreational Information Program (average weight = recreational pounds/recreational numbers).
Conversions conducted prior to the availability of average weight data from 2020 will exclude the use of 2016 and 2017, as a portion of the management unit was closed to recreational fishing during those years, and replace them with data from 2014 and 2015, respectively.
A state may submit alternative data sets that would provide more appropriate estimates of average weight for their state's fishery. Alternative data sets must be evaluated by the TC and approved by the Board before being implemented in converting that state's recreational harvest target from pounds to numbers.

4.4 COMMERCIAL FISHERY MANAGEMENT MEASURES

4.4.1 Size Limit Options

Issue 5

Options

a. (Status Quo) All states shall maintain a minimum size limit of 33 inches fork length or the total length equivalent (37 inches).

b. All states shall maintain a minimum size limit of 36 inches fork length or the total length equivalent (40 inches).

4.4.2 Possession Limit Options

All states shall maintain a commercial possession limit of no more than 2 cobia per person, not to exceed the vessel limit stated in *Section 4.4.3*.

4.4.3 Vessel Limits

Issue 6

Options

a. (Status Quo) All states shall maintain a daily vessel limit, not to exceed 6 fish per vessel.

b. All states shall establish a daily vessel limit, not to exceed 5 fish per vessel.

c. All states shall establish a daily vessel limit, not to exceed 4 fish per vessel.

4.4.4 Quota-based Management

Issue 7 (No alternatives recommended by the PDT)

The commercial fishery shall be managed by a coastwide, commercial quota, set through the harvest specification and sector allocation processes defined in *Sections 4.1* and *4.2*. If commercial *de minimis* states exist, three percent of the commercial quota will be set aside to account for commercial landings in *de minimis* states (qualifications for *de minimis* status are defined in Section 4.5.3).

Commercial landings shall be monitored in-season by non-*de minimis* states and NOAA Fisheries. If reported in-season commercial landings from non-*de minimis* states reach a trigger percentage of the commercial quota, the states will be informed and a future coastwide closure will be scheduled based on that date, after which the commercial fishery will be closed in all state waters within the management unit for the remainder of the calendar year. The Commission will also request through ACFCMA that NOAA Fisheries issue a similar closure in the Exclusive Economic Zone (EEZ).

The trigger percentage and number of following days until a closure occurs will be specified as part of the harvest specification process defined in *Section 4.1*. The number of days past the trigger percentage until a closure occurs will be calculated as the average number of days from the previous three years for commercial landings to go from the trigger percentage to the full commercial quota, less any *de minimis* set aside. The trigger shall be updated as part of the specification process, using similar methodology, to allow the states at least 30 days' notice of an impending commercial closure.

For example, the average number of days for weekly commercial landings in Virginia (VA)-South Carolina (SC) to go from 77% to 97% (accounting for a 3% *de minimis* set aside) of the 2019 commercial quota (50,000 lb) in 2015-17 was 32 days (ACCSP, queried April, 2019). Therefore, a commercial trigger based on these data would initiate a closure 32 days after in-season reported VA-SC landings reach 38,500 lb (77% of the commercial quota).

4.5 ALTERNATIVE STATE MANAGEMENT REGIMES

States are required to obtain prior approval from the Board of any changes to their management program for which a compliance requirement is in effect. Changes to non-compliance measures must be reported to the Board but may be implemented without prior Board approval. A state can request permission to implement an alternative management measure to any mandatory compliance measure only if that state can show, to the Board's satisfaction, that its alternative proposal will have the same or greater conservation value as the measure contained in this amendment or any addenda prepared under Adaptive Management (*Section 4.6*). States submitting alternative proposals must demonstrate that the proposed action will not contribute to overfishing of the resource. All changes to a state's plan must be submitted in writing to the Board and to the Commission as part of their annual compliance report.

4.5.1 General Procedures

A state may submit a proposal for a change to its regulatory program or any mandatory compliance measure under this amendment to the Commission. Such changes shall be submitted to the Chair of the Plan Review Team (PRT), who shall distribute the proposal to appropriate groups, including the Board, the PRT, the TC, and the AP.

The PRT is responsible for gathering the comments of the TC and the AP. The PRT is also responsible for presenting these comments to the Board for decision.

The Board will decide whether to approve the state proposal for an alternative management program if it determines that it is consistent with the goals and objectives of this amendment.

In order to maintain consistency within a fishing season, new rules should be implemented prior to the start of the fishing season. Given the time needed for the TC, AP, and Board to review the proposed regulations, as well as the time required by an individual state to promulgate new regulations, it may not be possible to implement new regulations for the on-going fishing season. In this case, new regulations should be effective at the start of the following season after a determination to do so has been made.

4.5.2 Management Program Equivalency

The TC, under the direction of the PRT, will review any alternative state proposals under this section and provide its evaluation of the adequacy of such proposals to the Board. The PRT can also ask for reviews by the Law Enforcement Committee (LEC) or the AP.

Following the first full year of implementation of an alternate management program, the PRT shall be responsible for evaluating the effects of the program to determine if the measures were equivalent with the standards of the FMP and subsequent amendments or addenda. The PRT will report to the Management Board on the performance of the alternate program.

4.5.3 *De Minimis* Fishery Guidelines

The Commission's Interstate Fisheries Management Program Charter (ISFMP Charter) defines *de minimis* as "a situation in which, under the existing condition of the stock and scope of the fishery, the conservation and enforcement actions taken by an individual state would be expected to contribute insignificantly to a coastwide conservation program required by a Fishery Management Plan or amendment," (ASMFC, 2016).

4.5.3.1 Recreational De Minimis Eligibility

A state can apply annually for *de minimis* status for their recreational fishery. To be eligible for *de minimis* consideration, a state's recreational landings for 2 of the previous 3 years must be less than 1% of the coastwide recreational landings for the same time period. Once *de minimis* status is granted, designated states must submit annual reports including commercial and recreational landings to the Management Board, justifying the continuance of *de minimis* status. States must include *de minimis* requests as part of their annual compliance reports.

4.5.3.1.1 *Procedure to Apply for De Minimis Status*

States must request *de minimis* status each year. Requests for *de minimis* status will be reviewed by the PRT as part of the annual FMP review process (*Section 5.3*). Requests for *de minimis* must be submitted to the Commission's Cobia FMP Coordinator as a part of the state's annual compliance report. The request must contain the following information: all available recreational landings data for the three previous full years of data and the proposed management measures the state plans to implement for the year *de minimis* status is requested. The FMP Coordinator will then forward the information to the PRT.

In determining whether a state meets the *de minimis* criteria, the PRT will consider the information provided with the request, the most recent available coastwide landings data, any information provided by the TC and SASC, and projections of future landings. The PRT will make a recommendation to the Board to either accept or deny the *de minimis* request. The Board will then review the PRT recommendation and either grant or deny the *de minimis* classification.

The Board must make a specific motion to grant a state *de minimis* status. By deeming a given state *de minimis*, the Board is recognizing that: the state has a minimal Atlantic cobia recreational fishery; there is little risk to the health of the Cobia stock if the state does not implement the full suite of management measures; and the overall burden of implementing the complete management and monitoring requirements of the FMP outweigh the conservation benefits of implementing those measures in that particular state.

If the Board denies a state's *de minimis* request, the state will be required to implement all the provisions of the FMP, including adherence to an allocation of the coastwide recreational

quota. When a state rescinds or loses its *de minimis* status, the Board will set a compliance date by which the state must implement the required regulations.

4.5.3.2 Plan Requirements if De Minimis Status is Granted

One percent (1%) of the recreational quota shall be set aside to account for harvests in *de minimis* states. If a state qualifies for *de minimis*, the state may choose to match the recreational management measures implemented by an adjacent non-de minimis state (or the nearest non-de minimis state if none are adjacent) or the state may choose to limit its recreational fishery to 1 fish per vessel per trip with a minimum size of 29 inches FL. A total length equivalent may be considered by the TC and Management Board. Should a *de minimis* state choose to match an adjacent (or the nearest) non-*de minimis* state, the *de minimis* state shall be subject to all recreational cobia regulations, including bag, size, vessel, and season restrictions, of their adjacent (or nearest) non-*de minimis* state. *De minimis* states that choose to limit their recreational fisheries to 1 fish per vessel per trip will not be subject to seasonal restrictions for their recreational fishery.

If the coastwide fishery is closed for any reason through Emergency Procedures (*Section 4.7*), *de minimis* states must close their fisheries as well.

Any additional components of the FMP, which the Board determines necessary for a *de minimis* state to implement, can be defined at the time *de minimis* status is granted.

4.5.3.3 Commercial De Minimis Options

Issue 8

Options

a. (Status quo) States may not apply for *de minimis* status for their commercial fishery.

b. States may apply for *de minimis* status for their commercial fishery. To be eligible for commercial *de minimis* consideration, a state's commercial landings for 2 of the previous 3 years must be less than 2% of the coastwide commercial landings for the same time period. States must annually request and prove their eligibility to maintain *de minimis* status. These states would be subject to all coastwide commercial regulations, including minimum size, possession, and vessel limits, as well as closures of the commercial fishery resulting from the commercial quota being reached. States with *de minimis* status for their commercial fishery would not be required to monitor commercial cobia landings for their state within the fishing year. They would still be required to report annual landings through their annual state compliance report. To account for potential, unmonitored landings in these states, 3% percent of the commercial quota would be set aside and not accessible to non-*de minimis* states.

4.6 ADAPTIVE MANAGEMENT

The Board may vary the requirements specified in this FMP as a part of adaptive management in order to conserve the Atlantic cobia resource. Specifically, the Board may change target fishing mortality rates, harvest specifications, or other measures designed to prevent overfishing of the stock complex or any spawning component. Such changes shall be instituted to become effective on the first fishing day of the following year, but may be put in place at an alternative time when deemed necessary by the Board.

4.6.1 General Procedures

The PRT shall monitor the status of the fisheries and the resources and report on that status to the Board annually or when directed to do so by the Board. The PRT shall consult with the TC, SAS, and AP in making such a review and report. The report will contain recommendations concerning proposed adaptive management revisions to the management program.

The Board shall review the report of the PRT, and may consult further with the TC, SAS, or AP. The Board may, based on the PRT Report or on its own discretion, direct the PDT to prepare an addendum to make any changes it deems necessary. An addendum shall contain a schedule for the states to implement its provisions.

The PDT will prepare a draft addendum, as directed by the Board, and distribute it to all states for review and public comment. The document will be released for public comment for a minimum of 30 days. A public hearing will be held in any state that requests one. After the comment period, the PDT will summarize the comments and present them to the Board along with the recommendations of the TC, SAS, LEC, and AP, when applicable. The Board shall then decide whether to adopt or revise and then adopt the addendum.

Upon adoption of an addendum by the Board, states shall prepare plans to carry out the addendum and submit them to the Board for approval, according to the schedule contained in the addendum.

4.6.1 Measures Subject to Change

The following measures are subject to change under adaptive management upon approval by the Management Board:

(1) Fishing year and/or seasons;
(2) Area closures;
(3) Overfishing definition, MSY and OY;
(4) Rebuilding targets and schedules;
(5) Fishery Specifications;
(6) Catch controls, including bag and size limits;
(7) Effort controls;

(8) Bycatch allowance
(9) Reporting requirements;
(10) Gear limitations;
(11) Measures to reduce or monitor bycatch;
(12) Observer requirements;
(13) Management areas;
(14) Recommendations to the Secretaries for complementary actions in federal jurisdictions;
(15) Research or monitoring requirements;
(16) Frequency of stock assessments;
(17) De minimis specifications;
(18) Management unit;
(19) Maintenance of stock structure;
(20) Catch allocation; and
(21) Any other management measures currently included in the Amendment 1.

4.7 EMERGENCY PROCEDURES

Emergency procedures may be used by the Board to require any emergency action that is not covered by or is an exception or change to any provision in Amendment 1. Procedures for implementation are addressed in the Commission's ISFMP Charter, Section Six (c) (10) (ASMFC, 2016).

4.8 MANAGEMENT INSTITUTIONS

The management institution for cobia will be subject to the provisions of the ISFMP Charter (ASMFC, 2016). The following are not intended to replace any or all of the provisions of the ISFMP Charter. All committee roles and responsibilities are included in detail in the ISFMP Charter and are only summarized here.

4.8.1 ASMFC and the ISFMP Policy Board

The Commission and the ISFMP Policy Board are generally responsible for the oversight and management of the Commission's fisheries management activities. The Commission must approve all fishery management plans and amendments, including Amendment 1, and must make all final determinations concerning state compliance or non-compliance. The ISFMP Policy Board reviews any non-compliance recommendations of the various Management Boards and Sections and, if it concurs, forwards them on to the Commission for action.

4.8.2 South Atlantic State/Federal Fisheries Management Board

The South Atlantic State/Federal Fisheries Management Board (Board) was established under the provisions of the Commission's ISFMP Charter (Section Four; ASMFC, 2016) and is responsible for carrying out all activities under this Amendment.

The Management Board establishes and oversees the activities of the PDT, PRT, TC, and SAS, as well as the South Atlantic Species AP. Among other things, the Board makes changes to the management program under adaptive management and approves state programs implementing the amendment and alternative state programs under Sections 4.5 and 4.6. The Management Board reviews the status of state compliance with the management program annually, and if it determines that a state is out of compliance, reports that determination to the ISFMP Policy Board under the terms of the ISFMP Charter.

4.8.3 Plan Development Team / Plan Review Team

The Cobia Plan Development Team (PDT) and Cobia Plan Review Team (PRT) are composed of scientists and/or managers whose responsibility is to provide all of the technical support necessary to carry out and document the decisions of the Board. A Commission FMP Coordinator chairs the PDT and PRT. The PDT and PRT will be directly responsible to the Management Board for providing information and documentation concerning the implementation, review, monitoring and enforcement of the species management plan. The PDT and PRT will be comprised of personnel from state and federal agencies who have scientific and management ability and knowledge of the relevant species. The Cobia PDT is responsible for preparing all documentation necessary for the development of management documents, using the best scientific information available and the most current stock assessment information. The PDT will either disband or assume inactive status upon completion of Amendment 1. Alternatively, the Board may elect to retain PDT members as members of the species-specific PRT, or appoint new members. The PRT provides annual advice concerning the implementation, review, monitoring, and enforcement of the FMP once it has been adopted by the Commission.

4.8.4 Technical Committee

The Cobia Technical Committee (TC) will consist of representatives from state and/or federal agencies, Regional Fishery Management Councils, Commission, university or other specialized personnel with scientific and technical expertise and knowledge of Atlantic cobia. The Management Board will appoint the members of a TC and may authorize additional seats as it sees fit. The role of the TC is to assess the species' population, provide scientific advice concerning the implications of proposed or potential management alternatives, and respond to other scientific questions from the Board, PDT, or PRT. The SAS reports to the TC.

4.8.5 Stock Assessment Subcommittee

Atlantic cobia will be primarily assessed through the Southeast Data, Assessment, and Review (SEDAR) process. However, in addition to SEDAR, the Management Board may appoint members to the Cobia Stock Assessment Subcommittee (SAS). The SAS is approved by the Management Board, with consultation from the TC, and consists of scientists with expertise in the assessment of Atlantic cobia. Its role is to assess the species population and provide scientific advice concerning the implications of proposed or potential management alternatives,

or to respond to other scientific questions from the Management Board, TC, PDT or PRT. The SAS reports to the TC.

4.8.6 Advisory Panel

The South Atlantic Species Advisory Panel (AP) was established according to the Commission's Advisory Committee Charter. Members of the AP are citizens who represent a cross-section of commercial and recreational fishing interests and others who are concerned about the conservation and management of cobia, as well as Atlantic croaker, black drum, red drum, Spanish mackerel, spot, and spotted seatrout. The AP provides the Management Board with advice directly concerning the Commission's management programs for these seven species.

4.8.7 Federal Agencies

4.8.7.1 Management in the Exclusive Economic Zone (EEZ)

Management of Atlantic cobia in the EEZ was previously under the jurisdiction of the SAFMC under the Magnuson-Stevens Fishery Conservation and Management Act, as amended (16 U.S.C. 1801 et seq.). However, in the absence of a Council Fishery Management Plan for Atlantic cobia, as is the case under Amendment 31 to the CMP FMP, management of this species is the responsibility of NOAA Fisheries, as mandated by the Atlantic Coastal Fisheries Cooperative Management Act (16 U.S.C. 5105 et seq.). The Commission may recommend regulatory measures to NOAA Fisheries for implementation in the EEZ.

4.8.7.2 Federal Agency Participation in the Management Process

The Commission has accorded the United States Fish and Wildlife Service (USFWS) and NOAA Fisheries voting status on the ISFMP Policy Board and the South Atlantic State/Federal Fisheries Management Board in accordance with the Commission's ISFMP Charter. NOAA Fisheries and the USFWS may also participate on the Management Board's supporting committees described in *Sections 4.8.3-4.8.6*.

4.8.7.3 Consultation with Fishery Management Councils

As of March 21, 2019, Atlantic cobia is no longer included in any SAFMC or other Council FMP. No Regional Fishery Management Councils have indicated an intent to develop a future plan for this stock. However, the SAFMC will continue to have a role in stock assessments for Atlantic cobia by conducting them through the SEDAR process. Additionally, in accordance with the Commission's ISFMP Charter, a representative of the SAFMC shall be invited to participate as a full member of the South Atlantic State/Federal Fisheries Management Board.

4.9 RECOMMENDATION TO THE SECRETARY OF COMMERCE FOR COMPLEMENTARY ACTIONS IN FEDERAL JURISDICTIONS

Through approval of Amendment 31 to the CMP FMP, the SAFMC no longer manages cobia in the EEZ. Therefore, it is necessary for the Commission to recommend measures to be implemented by NOAA Fisheries in the EEZ through authority and process defined in the ACFCMA.

If, for any reason, the coastwide fishery for either the commercial or recreational fishery are closed within state waters, the Commission will request through the ACFCMA that NOAA Fisheries issue a similar closure in the EEZ.

Issue 9

Options

a. Regulations in federal waters will be recommended to correspond to those of the vessel's state of landing.

b. Regulations in federal waters will be recommended to correspond to the location of catch, with regulations persisting along a latitudinal extension of state boundaries into federal waters. This extension for all boundaries would be directly due east, not along any alternative trajectory of these boundaries as they approach the Atlantic coast.

c. Regulations in federal waters will be recommended to correspond to those of the vessel's state of landing, with specified areas of restricted harvest. Regulations and boundaries for these areas of restricted harvest may be requested by a state, but must be approved by the Board.

4.10 COOPERATION WITH OTHER MANAGEMENT INSTITUTIONS

The Board will cooperate with other management institutions during the implementation of this amendment, including NOAA Fisheries and the SAFMC.

5.0 COMPLIANCE

The full implementation of the provisions included in this amendment is necessary for the management program to be equitable, efficient, and effective. States are expected to implement these measures faithfully under state laws. The Commission will continually monitor the effectiveness of state implementation and determine whether states are in compliance with the provisions of this fishery management plan.

The Board sets forth specific elements that the Commission will consider in determining state compliance with Amendment 1, and the procedures that will govern the evaluation of compliance. Additional details of the procedures are found in the Commission's ISFMP Charter

(ASMFC, 2016).

5.1 MANDATORY COMPLIANCE ELEMENTS FOR STATES

A state will be determined to be out of compliance with the provisions of this fishery management plan, according to the terms of Section Seven of the ISFMP Charter if:

- Its regulatory and management programs to implement Section 4 have not been approved by the Board; or
- It fails to meet any schedule required by *Section 5.1.2*, or any addendum prepared under Adaptive Management (*Section 4.6*); or
- It has failed to implement a change to its program when determined necessary by the Board; or
- It makes a change to its regulations required under Section 4 or any addendum prepared under Adaptive Management (*Section 4.6*), without prior approval from the Board.

5.1.1 Mandatory Elements of State Programs

To be considered in compliance with this Amendment, all state programs will include harvest controls on cobia fisheries consistent with the requirements of *Sections 4.3, 4.4, 4.5*; except that a state may propose an alternative management program under *Section 4.5*, which, if approved by the Board, may be implemented as an alternative regulatory requirement for compliance.

5.1.1.1 Regulatory Requirements

States may begin to implement Amendment 1 after final approval by the Commission. Each state will be required to submit its Atlantic cobia regulatory program to the Commission through the Commission staff for approval by the Board. During the period between submission and the Board approval of the state's program, a state may not adopt a less protective management program than contained in this Amendment or contained in current state law. The following lists the specific compliance criteria that a state/jurisdiction will be required to implement in order to be in compliance with Amendment 1:

- Recreational fishery management measures as specified in *Section 4.3* including the Size Limit (*Section 4.3.1*), Bag Limit (*Section 4.3.2*), coastwide Vessel Limit (*Section 4.3.3*), and adherence to a state recreational harvest target (*Section 4.3.4*).
- Commercial fishery management measures as specified in *Section 4.4* including the Size Limit (*Section 4.4.1*), Possession Limit (*Section 4.4.2*), coastwide Vessel Limit (*Section*

4.4.3), and closures of the commercial fishery if the commercial quota is met (*Section 4.4.4*).

- Monitoring requirements as specified in *Section 3.1.1*.

- All state programs must include law enforcement capabilities adequate for successful implementation of the compliance measures contained in this Amendment.

- There are no mandatory research requirements at this time; however, research requirements may be added in the future under Adaptive Management, *Section 4.6*.

- There are no mandatory habitat requirements in Amendment 1.

5.2 COMPLIANCE SCHEDULE

States must implement this Amendment according to the following schedule:

Month Day, 201X: Submission of state programs to implement Amendment 1 for approval by the Board. Programs must be implemented upon approval by the Board.

Month Day, 201X: States with approved management programs must implement Amendment 1. States may begin implementing management programs prior to this deadline if approved by the Board.

5.3 COMPLIANCE REPORTS

Each state must submit to the Commission an annual report concerning its Atlantic cobia fisheries and management program for the previous year, no later than July 1st. A standard compliance report format has been prepared and adopted by the ISFMP Policy Board. States should follow this format in completing the annual compliance report.

5.4 PROCEDURES FOR DETERMINING COMPLIANCE

Detailed procedures regarding compliance determinations are contained in the ISFMP Charter, Section Seven (ASMFC, 2016). In brief, all states are responsible for the full and effective implementation and enforcement of fishery management plans in areas subject to their jurisdiction. Written compliance reports as specified in this amendment must be submitted annually by each state with a declared interest. Compliance with Amendment 1 will be reviewed at least annually; however, the Board, ISFMP Policy Board, or the Commission may request the PRT to conduct a review of state's implementation and compliance with Amendment 1 at any time.

The Board will review the written findings of the PRT within 60 days of receipt of a State's compliance report. Should the Board recommend to the Policy Board that a state be

determined out of compliance, a rationale for the recommended noncompliance finding will be addressed in a report. The report will include the required measures of Amendment 1 that the state has not implemented or enforced, a statement of how failure to implement or enforce required measures jeopardizes Atlantic cobia conservation, and the actions a state must take in order to comply with Amendment 1 requirements.

The ISFMP Policy Board will review any recommendation of noncompliance from the Board within 30 days. If it concurs with the recommendation, it shall recommend to the Commission that a state be found out of compliance.

The Commission shall consider any noncompliance recommendation from the ISFMP Policy Board within 30 days. Any state that is the subject of a recommendation for a noncompliance finding is given an opportunity to present written and/or oral testimony concerning whether it should be found out of compliance. If the Commission agrees with the recommendation of the ISFMP Policy Board, it may determine that a state is not in compliance with Amendment 1 and specify the actions the state must take to come into compliance.

Any state that has been determined to be out of compliance may request that the Commission rescind its noncompliance findings, provided the state has revised its Atlantic cobia conservation measures.

5.5 ANALYSIS OF THE ENFORCEABILITY OF PROPOSED MEASURES

The Commission's Law Enforcement Committee will, during the implementation of this FMP, analyze the enforceability of new conservation and management measures as they are proposed.

6.0 RESEARCH NEEDS

These management and research needs will be reviewed annually as part of the Commission's FMP Review process. The annual Cobia FMP Review will contain an updated list for future reference.

6.1 STOCK ASSESSMENT AND POPULATION DYNAMICS

An updated stock assessment for the Atlantic cobia has been scheduled for completion in 2019, led by SEFSC Beaufort Lab. The assessment will provide updated status information since the terminal year of the last assessment (2012). Anticipated results will include updated stock status and reference points and contribute to recommendations for additional management needs, if any.

6.2 RESEARCH AND DATA NEEDS

The following research recommendations were developed by the Cobia PDT and are ordered, within each category, from highest to lowest recommended priority.

6.2.1 Biological

1) Obtain more precise and timely estimates of harvest from the cobia recreational fishery.
2) Investigate release mortality and fishing mortality within the commercial and recreational fisheries in along the US Atlantic coast.
3) Continue to collect and analyze current life history data from fishery independent and dependent programs, including full size, age, maturity, histology workups and information on spawning season timing and duration. Any additional data that can be collected on any life stages of cobia would be highly beneficial.
4) Increase spatial and temporal coverage of age samples collected regularly in fishery dependent and independent sources. Prioritize collection of age data from fishery dependent and independent sources in all states.
5) Collect genetic material to continue to assess the stock identification and any Distinct Population Segments that may exist within the management unit relative to recommendations made by the SEDAR 58 Stock ID Process.
6) Conduct a high reward tagging program to obtain improved return rate estimates. Continue and expand current tagging programs to obtain mortality and growth information and movement at size data.
7) Conduct studies to estimate fecundity-at-age coastwide and to estimate batch fecundity.
8) Obtain better estimates of bycatch and mortality of cobia in other fisheries, especially juvenile fish.
9) Obtain estimates of selectivity-at-age for cobia through observer programs or tagging studies.
10) Define, develop, and monitor adult and juvenile abundance estimates through the expansion of current or development of fishery independent surveys.

6.2.2 Social

1) Using social impact analysis approaches such as updating applicable recreational and commercial fisheries community profiles and measures of social vulnerability (See Jepson & Colburn, 2013), evaluate the local and regional dependency on cobia resources managed by the Commission.

6.2.3 Economic

1) Obtain better data (e.g. more comprehensive and timely) to estimate the annual economic impacts, net benefits, and economic contributions of recreational and commercial Atlantic cobia fishing on coastal communities and regions.

2) Obtain cost and expenditure data for recreational fishing trips targeting cobia by fishing mode, for different states, and for anglers returning to private sites, who would not be sampled by the MRIP.
3) Estimate willingness-to-pay associated with recreational cobia angling.

6.2.4 Habitat

1) Expand existing fishery independent surveys in time and space to better define and cover cobia habitats.
2) Conduct otolith microchemistry studies to identify regional recruitment contributions.
3) Conduct new and expand existing satellite tagging programs to help identify spawning and juvenile habitat use and regional recruitment sources.

6.2.5 State-specific

6.2.5.1 Georgia

Little is known regarding cobia stocks off Georgia. It is unclear if Georgia has a unique subpopulation of East-West migration cobia as seen in other nearby states (South Carolina). Currently cobia in Georgia are recognized and managed as part of the Atlantic Migratory Group (AMG). It is possible that some portion of Georgia fish could be mixing more with the Florida East Coast/Gulf stock rather than the AMG. If this is occurring, it could have important management implications for the species. Furthermore, the range of habitat types (inshore vs. nearshore) utilized by cobia in Georgia remains unknown. It would be beneficial to better explain the range of habitats utilized by cobia in Georgia as well as identify overwintering locations for Georgia cobia. This could be easily done through a simple acoustic telemetry study. Identifying these basic life history characteristics for cobia in Georgia will aid in the management of the species both at a state and a regional level. Additionally, better socio-economic estimates of the impact of cobia fishing in Georgia would aid in understanding how regulatory changes may impact the socio-economic benefits of cobia fishing to the State of Georgia and the South Atlantic region.

7.0 PROTECTED SPECIES

In the fall of 1995, Commission member states, the National Marine Fisheries Service (NMFS; now, NOAA Fisheries) and the U.S. Fish and Wildlife Service (USFWS) began discussing ways to improve implementation of the Marine Mammal Protection Act (MMPA) and the Endangered Species Act (ESA) in state waters. Historically, these policies have been minimally enforced in state waters (0-3 miles). In November 1995, the Commission, through its ISFMP Policy Board, approved amendment of its ISFMP Charter (Section Six (b)(2)) so that interactions between Commission-managed fisheries and species protected under the MMPA, ESA, and other

legislation, including the Migratory Bird Treaty Act be addressed in the Commission's fisheries management planning process. Specifically, the Commission's fishery management plans describe impacts of state fisheries on certain marine mammals and endangered species (collectively termed "protected species"), and recommend ways to minimize these impacts. The following section outlines: (1) the federal legislation which guides protection of marine mammals, sea turtles, and marine birds; (2) the protected species with potential fishery interactions; (3) the specific type(s) of fishery interactions; (4) population status of the affected protected species; and (5) potential impacts to Atlantic coastal state and interstate fisheries.

7.1 MARINE MAMMAL PROTECTION ACT (MMPA) REQUIREMENTS

Since its passage in 1972, one of the primary goals of the MMPA has been to reduce the incidental mortality and serious injury of marine mammals permitted in the course of commercial fishing operations to insignificant levels approaching a zero mortality and serious injury rate. Under the 1994 Amendments, the MMPA requires the NMFS to develop and implement a take reduction plan to assist in the recovery or prevent the depletion of each strategic stock that interacts with a Category I or II fishery. Specifically, a strategic stock is defined as a stock: (1) for which the level of direct human caused mortality exceeds the potential biological removal (PBR) level; (2) which is declining and is likely to be listed under the Endangered Species Act (ESA) in the foreseeable future; or (3) which is listed as a threatened or endangered species under the ESA or as a depleted species under the MMPA. Category I and II fisheries are those that have frequent or occasional incidental mortality and serious injury of marine mammals, respectively, whereas Category III fisheries have a remote likelihood of incidental mortality and serious injury of marine mammals. Each year, NOAA Fisheries publishes an annual List of Fisheries which classifies commercial fisheries into one of these three categories.

Under the 1994 mandates, the MMPA also requires fishermen participating in Category I and II fisheries to register under the Marine Mammal Authorization Program (MMAP), the purpose of which is to provide an exception for commercial fishermen from the general taking prohibitions of the MMPA for non-ESA listed marine mammals. All fishermen, regardless of the category of fishery they participate in, must report all incidental injuries and mortalities caused by commercial fishing operations within 48 hours.

Section 101(a)(5)(E) of the MMPA allows for the authorization of the incidental taking of individuals from marine mammal stocks listed as threatened or endangered under the ESA in the course of commercial fishing operations if it is determined that: (1) incidental mortality and serious injury will have a negligible impact on the affected species or stock; (2) a recovery plan has been developed or is being developed for such species or stock under the ESA; and (3) where required under Section 118 of the MMPA, a monitoring program has been established, vessels engaged in such fisheries are registered in accordance with Section 118 of the MMPA, and a take reduction plan has been developed or is being developed for such species or stock.

Permits are not required for Category III fisheries; however, any mortality or serious injury of a marine mammal must be reported.

7.2 ENDANGERED SPECIES ACT (ESA) REQUIREMENTS

The taking of endangered sea turtles, fish, seabirds, and marine mammals is prohibited and considered unlawful under Section 9(a)(1) of the ESA. In addition, NOAA Fisheries or the USFWS may issue Section 4(d) protective regulations necessary and advisable to provide for the conservation of threatened species. The ESA defines take as "to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct." There are several mechanisms established in the ESA to allow exceptions to the take prohibition in Section 9(a)(1). Section 10(a)(1)(A) of the ESA authorizes NOAA Fisheries to allow the taking of listed species through the issuance of research permits for scientific purposes or to enhance the propagation or survival of the species. Section 10(a)(1)(B) authorizes NOAA Fisheries to permit, under prescribed terms and conditions, any taking otherwise prohibited by Section 9(a)(1)(B) of the ESA, if the taking is incidental to, and not the purpose of, carrying out an otherwise lawful activity. Finally, Section 7(a)(2) requires federal agencies to consult with NOAA Fisheries to ensure that any action that is authorized, funded, or carried out by such agency is not likely to jeopardize the continued existence of any listed species or result in the destruction or adverse modification of critical habitat of such species. If, following completion of consultation, an action is found to jeopardize the continued existence of any listed species or cause adverse modification to critical habitat of such species, reasonable and prudent alternatives will be identified so that jeopardy or adverse modification to the species is removed and Section

7(a)(2) is met (see Section 7(b)(3)(A)). Alternatively, if, following completion of consultation, an action is not found to jeopardize the continued existence of any listed species or cause adverse modification to critical habitat of such species, reasonable and prudent measures will be identified that minimize the take of listed species or adverse modification of critical habitat of such species (see Section 7(b)(4)). Section (7)(o) provides the actual exemption from the take prohibitions established in Section 9(a)(1), which includes Incidental Take Statements that are provided at the end of consultation via the ESA Section 7 Biological Opinions.

7.3 MIGRATORY BIRD TREATY ACT (MBTA) REQUIREMENTS

Under the Migratory Bird Treaty Act it is unlawful “by any means or in any manner, to pursue, hunt, take, capture, [or] kill” any migratory birds except as permitted by regulation (16 USC. 703). Section 50 CFR 21.11 prohibits the take of migratory birds except under a valid permit or as permitted in the regulations. Many migratory waterbirds occur within the boundaries of cobia fisheries. USFWS Policy on Waterbird Bycatch (2000) states: “It is the policy of the U.S. Fish and Wildlife Service that the Migratory Bird Treaty Act of 1918, as amended, legally mandates the protection and conservation of migratory birds. The USFWS seeks to actively expand partnerships with regional, national, and international organizations, States, tribes, industry, and environmental groups to address seabird bycatch in fisheries, by promoting public

awareness of waterbird bycatch issues, and facilitating the collection of scientific information to develop and provide guidelines for management, regulation, and compliance."

Birds of Management Concern are a subset of MBTA-protected species which pose special management challenges because of a variety of factors (e.g., too few, too many, conflicts with human interests, societal demands). These species are of concern because of: documented or apparent population declines; small or restricted populations; dependence on restricted or vulnerable habitats; or overabundant to the point of causing ecological and economic damage.

7.4 PROTECTED SPECIES WITH POTENTIAL FISHERY INTERACTIONS

The management unit of the cobia Atlantic Migratory Group extends from the Georgia/Florida line through New York. There are numerous protected species that inhabit the range of the cobia management unit covered under this FMP. Listed below are ESA and MMPA protected species found in coastal and offshore waters of the Atlantic Ocean within the range of cobia fisheries. USFWS species of management concern that have the potential to interact with cobia fisheries are also listed. Species of management concern are protected under the MBTA, but lack the protections mandated by the ESA.

ESA – Endangered[4]

- Atlantic sturgeon *(Acipenser oxyrinchus oxyrinchus)*, NY Bight, Chesapeake Bay, Carolina, and South Atlantic Distinct Population Segments (DPSs)[5]
- Shorthnose sturgeon (*Acipenser brevirostrum*)
- Smalltooth sawfish (*Pristis pectinata*)
- Blue whale (*Balaenoptera musculus*)
- Fin whale (*Balaenoptera physalus*)
- Humpback whale (*Megaptera novaeangliae*)
- North Atlantic right whale (*Eubalaena glacialis)*
- Sei whale (*Balaenoptera borealis*)
- Sperm whale (*Physeter microcephalus*)
- Hawksbill sea turtle (*Eretmochelys imbricata*)
- Kemp's ridley sea turtle *(Lepidochelys kempii)*
- Leatherback sea turtle (*Dermochelys coriacea)*
- Bermuda petrel (*Pterodroma cahow*)

[4] http://www.nmfs.noaa.gov/pr/species/esa/listed.htm

[5] A distinct population segment (DPS) is a vertebrate population or group of populations that is discrete from other populations of the species and significant in relation to the entire species. The ESA provides for listing species, subspecies, or DPS of vertebrate species.

- Roseate tern *(Sterna dougallii dougallii*)*,* northeastern U.S. and Nova Scotia breeding population

ESA – Threatened[6]

- Atlantic sturgeon (*Acipenser oxyrinchus oxyrinchus*), Gulf of Maine DPS
- Nassau grouper (*Epinephelus striatus*)
- Green sea turtle (*Chelonia mydas),* North Atlantic and South Atlantic DPSs
- Loggerhead sea turtle *(Caretta caretta)*, Northwest Atlantic Ocean DPS
- Roseate tern *(Sterna dougallii dougallii*)*,* Southeastern U.S. and Caribbean breeding population (FL, GA, NC, SC, Puerto Rico, Virgin Islands)
- Piping plover (*Charadrius melodus*)

MMPA – Protected[7]

Includes all marine mammals above in addition to:

- Atlantic spotted dolphin *(Stenella frontalis)*
- Bottlenose dolphin (*Tursiops truncatus*)
- Atlantic white-sided dolphin *(Lagenorhynchus acutus)*
- Clymene dolphin (*Stenella clymene*)
- Pantropical spotted dolphin *(Stenella attenuata)*
- Risso's dolphin (*Grampus griseus*)
- Rough-toothed dolphin (*Steno bredanensis*)
- Short-beaked common dolphin *(Delphinus delphis)*
- Spinner dolphin (*Stenella longirostris*)
- Striped dolphin (*Stenella coeruleoalba*)
- Gray seal (*Halichoerus grypus*)
- Harbor porpoise (*Phocoena phocoena*)
- Harbor seal (*Phoca vitulina*)
- Minke whale (*Balaenoptera acutorostrata*)
- Cuvier's beaked whale (*Ziphius cavirostris*)
- Gervais' beaked whale (*Mesoplodon europaeus*)
- True's beaked whale *(Mesoplodon mirus)*
- Bryde's whale (*Balaenoptera edeni*)
- Dwarf sperm whale *(Kogia sima)*
- False killer whale (*Pseudorca crassidens*)
- Killer whale (*Orcinus orca*)
- Long-finned pilot whale *(Globicephala melas)*

[6] http://www.nmfs.noaa.gov/pr/species/esa/listed.htm

[7] http://www.nmfs.noaa.gov/pr/species/mammals

- Melon-headed whale (*Peponocephala electra*)
- Pygmy killer whale (*Feresa attenuate*)
- Pygmy sperm whale (*Kogia breviceps*)
- Short-finned pilot whale (*Globicephala macrorhynchus*)

ESA – Species of Concern[8]

- Alewife (*Alosa pseudoharengus*)
- Blueback herring (*Alosa aestivalis*)
- Dusky shark (*Carcharhinus obscures*)
- Porbeagle shark *(Lamna nasus)*
- Rainbow smelt (*Osmerus mordax*)
- Sand tiger shark (*Carcharias taurus*)
- Speckled hind (*Epinephelus drummondhayi*)
- Striped croaker (*Bairdiella sanctaeluciae*)
- Warsaw grouper (*Epinephelus nigritus*)

MBTA—USFWS Species of Management Concern

- Canvasback (*Aythya valisineria*)
- Redhead (*Aythya americana*)
- Greater scaup (*Aythya marila*)
- Lesser scaup (*Aythya affinis*)
- Surf scoter (*Melanitta perspicillata*)
- White-winged scoter (*Melanitta fusca*)
- Black scoter (*Melanitta americana*)
- Long-tailed duck (*Clangula hyemalis*)
- Common goldeneye (*Bucephala clangula*)
- Red-throated loon (*Gavia stellata)*
- Black-capped petrel (*Pterodroma hasitata*)
- Greater shearwater (*Puffinus gravis*)
- Audubon's shearwater (*Puffinus lherminieri*)
- Band-rumped storm-petrel (*Oceanodroma castro*)
- Masked booby (*Sula dactylaria*)
- Brown booby (*Sula leucogaster*)
- Pied-billed grebe (*Podilymbus podiceps*)
- Horned grebe (*Podiceps auritus*)
- Magnificent frigatebird (*Fregata magnificens*)
- Least tern (*Sternula antillarum*), non-listed Atlantic coast subspecies

[8] http://www.nmfs.noaa.gov/pr/species/concern/

- Gull-billed tern (*Gelochelidon nilotica*)

7.5 PROTECTED SPECIES INTERACTIONS WITH EXISTING FISHERIES

7.5.1 Overview of the Cobia Fishery and Gears Used

Recreational fisheries are prosecuted similarly along the coast. The directed cobia fishery is prosecuted in two distinct ways. Bottom fishing with live or dead baits, often while chumming, in estuarine waters or around inlets or offshore around structure, buoys, markers, natural and artificial reefs. More recently, an active method of searching for fish traveling alone or in small groups on the surface or associated with schools of Atlantic menhaden or other bait fishes has grown in popularity. This newer method has resulted in the further development of the for-hire component for cobia, as well as the development of specific artificial baits and boat modifications (e.g., towers) to facilitate spotting and catching the fish. A third method primarily prosecuted in offshore waters is to target large rays, large sharks, sea turtles or floating debris around which cobia congregate. However, the practice of targeting sea turtles while cobia fishing is considered a "take" under the Endangered Species act and is, therefore, unlawful. Additionally, the Atlantic coast of Florida is starting to see more directed spearfishing pressure on cobia. Specifically, spearfishers are chumming for bull shark and then diving/free-diving to spear cobia that associate with them. Spearfishing also occurs off North Carolina, along with a popular pier fishery.

The recreational fishery also takes cobia as bycatch in offshore bottom fisheries such as snapper/grouper, nearshore trolling for king mackerel, bluefish, and dolphin and any other fishery that employs live or dead bait fished on or near the bottom. While the directed fishery appears to focus more on the spring-summer spawning migration, bycatch, especially offshore, can yield cobia virtually year round. The average of recreational Atlantic cobia landings from 2010-2018 is 1.8 million lb (MRIP, queried April, 2019).

The commercial fishery has traditionally been a bycatch in other directed fisheries such as the snapper/grouper hook and line fishery and troll fisheries for various species (e.g., king mackerel, dolphin, wahoo, amberjack). Directed fisheries are generally precluded as a result of the low possession limits, but do occur, specifically Virginia's commercial hook and line fishery. Cobia from for-hire trips may also be sold commercially, depending on the state's permit requirements for selling fish. The average of commercial Atlantic cobia landings from 2010-2017 is 62,073 lb (ACCSP, queried April, 2019). In 2017, the predominant gear categories that were used commercially to capture Atlantic cobia were gill nets (33%), hand line (29%), hook and line (20%), and pound nets (11%) (ACCSP, queried April, 2019).

7.5.2 Marine Mammals

NMFS completed a biological opinion on June 18, 2015, evaluating the impacts of the CMP fishery on ESA-listed species. In the biological opinion, NMFS determined that the proposed continued authorization of the CMP Fishery, is not likely to adversely affect any listed whales

(i.e., blue, sei, sperm, fin, humpback, or North Atlantic right whales). NMFS also determined that the CMP fishery will have no effect on designated critical habitat for North Atlantic right whale (NMFS, 2015).

The Gulf and South Atlantic CMP hook-and-line fishery (which includes fisheries that capture cobia) is classified in the 2017 MMPA List of Fisheries as a Category III fishery (82 FR 3655; January 12, 2017). This means the annual mortality and serious injury of a marine mammal resulting from the fishery is less than or equal to 1% of PBR, the maximum number of animals, not including natural moralities, that may be removed from a marine mammal stock while allowing that stock to reach or maintain its optimum sustainable population. In other words, there is a remote likelihood of or no known incidental mortality and serious injury of marine mammals resulting from these fisheries.

The Gulf and South Atlantic CMP gillnet fishery is classified as Category II fishery in the 2017 MMPA List of Fisheries. This classification indicates an occasional incidental mortality or serious injury of a marine mammal stock resulting from the fishery (1-50% annually of PBR). The fishery has no documented interaction with marine mammals; NMFS classifies this fishery as Category II based on analogy (i.e., similar risk to marine mammals) with other gillnet fisheries.

7.5.3 Sea Turtles

7.5.3.1 Overview

As mentioned above, the NMFS completed a biological opinion on June 18, 2015, evaluating the impacts of the CMP fishery (including king mackerel, Spanish mackerel, and cobia) on ESA-listed species (NMFS, 2015). According to the biological opinion, green, hawksbill, Kemp's ridley, leatherback, and loggerhead sea turtles are all likely to be adversely affected by the CMP fishery. Green, hawksbill, Kemp's ridley, leatherback, and loggerhead sea turtles are all highly migratory, travel widely throughout the GOM and South Atlantic, and are known to occur in area of the fishery. The biological opinion evaluated the potential for the following gears to interact with protected species: hook-and-line gear, cast net gear, and gill net gear. The biological opinion found that gill net gear is the only gear used in the CMP fisheries that may adversely affect sea turtles. Gill net gear is used to target both Spanish and king mackerel, but not cobia.

7.5.3.2 Hook-and-Line Fishing

The 2015 biological opinion for CMP resources concluded that sea turtles (as well as smalltooth sawfish and Atlantic sturgeon) are not likely to be adversely affected by CMP hook-and-line fishing. The 2015 biological opinion stated: "*The hook-and-line gear used by both commercial and recreational fishers to target CMP species is limited to trolled or, to a much lesser degree (e.g., historically ~2% by landings for king mackerel), jigged handline, bandit, and rod-and-reel gear. Sea turtles, Atlantic sturgeon, and smalltooth sawfish are both vulnerable to capture on hook-and-line gear, but the techniques commonly used to target CMP species makes effects on*

these listed species extremely unlikely and, therefore, discountable. Sea turtles are unlikely to be caught during hook-and-line trolling because of the speed (4-10 kt) at which the lure is pulled through the water. As cedar plugs and spoons are generally used when trolling, it is unlikely that a sea turtle of any size would actively pursue the gear and get hooked. Likewise, we also believe sea turtles would be unlikely to be snagged by jigged gear as it is deployed at or near the surface and constantly reeled and jigged back to the boat. It is possible that a sea turtle could be incidentally snagged if it comes in contact with a trolled or jigged hook, but the chances of this occurring are extremely low… We believe that CMP species caught on bandit gear or standard rod-and-reel gear (i.e., baited and deployed as passive, vertical gear) are largely bycatch when targeting other species closer to the bottom (e.g., snapper and grouper); use of the gear in this method (i.e., mid-water placement) is not effective at catching mackerel based on available information (e.g., landings data). In summary, we believe effects from these gear types on Atlantic sturgeon, smalltooth sawfish, and sea turtles are extremely unlikely to occur, and are therefore discountable" (NMFS, 2015).

There is limited information about protected species interactions within recreational fisheries.

In 2015, The North Carolina Division of Marine Fisheries conducted a project funded under the ACCSP to examine potential protected species interactions and finfish discards and releases in the recreational cobia hook-and-line fishery. Observations were made via an alternative observer platform, where recreational fishing activity was monitored at close proximity from individuals on state owned vessels. From April 27, 2015, through October 29, 2015, 552 recreational hook-and-line observations (observed fishing trips) were completed over 138 observed fishing days with 16.2% of fishing trips targeting cobia. Observations occurred in inshore (estuarine) and near-shore waters (≤ 3 miles) of Carteret County. No protected species interactions were observed (Boyd, 2016).

7.5.3.3 Gill Net

Cobia are generally considered a bycatch species within gill net fisheries. The 2015 biological opinion for CMP resources concluded that gill net gear used in the federal CMP fisheries of the Atlantic and GOM have adversely affected sea turtles, smalltooth sawfish, and Atlantic sturgeon in the past via entanglement and, in the case of sea turtles, via forced submergence (NMFS, 2015).

7.5.3.4 Targeting of Large Animals

One known method used to prosecute cobia in offshore waters is to target large rays, large sharks, sea turtles, or floating debris around which cobia congregate. However, the practice of targeting sea turtles while cobia fishing is considered a "take" under the Endangered Species act and is, therefore, unlawful. Not much is known about this method or its impacts on protected species.

7.5.4 Sturgeon, Smalltooth Sawfish, Nassau Grouper

The 2015 biological opinion for CMP resources concluded that gill net gear used in the federal CMP fisheries of the Atlantic and GOM have adversely affected smalltooth sawfish[9] and Atlantic sturgeon in the past via entanglement.

The biological opinion also concluded that smalltooth sawfish and Atlantic sturgeon are not likely to be adversely affected by CMP hook-and-line fishing. Fishers who capture smalltooth sawfish most commonly report that they were fishing for snook, redfish, or sharks (Simpfendorfer and Wiley, 2004), not CMP species. Additionally, Atlantic sturgeon and smalltooth sawfish are largely bottom-dwelling species, whereas CMP lures and baits are typically fished near the surface of the water. This also greatly reduces the likelihood of Atlantic sturgeon and smalltooth sawfish interactions with trolling gear (NMFS, 2015).

On June 29, 2016, NMFS published a final rule listing Nassau grouper as threatened under the ESA. Reinitiation of Section 7 consultation on the CMP FMP is needed to address newly listed species. NOAA Fisheries is currently prioritizing completion of the consultation along with other consultations required after recent listings.

7.5.5 Seabirds

The roseate tern, Bermuda petrel, and piping plover are the only ESA listed bird species within the mid-and south-Atlantic maritime regions. The roseate tern and Bermuda petrel are uncommon in inshore and coastal waters of the mid- and south-Atlantic and thus, have relatively low likelihoods of interacting with cobia fisheries. Nevertheless, exceptional efforts to avoid deleterious interactions with these species are warranted as they are rare and highly vulnerable to even minimal levels of mortality. The piping plover could be impacted by shore-based fishing activity if individuals were disturbed or killed by vehicles related to fishing efforts. However, during the nesting season, when plovers are highly vulnerable to beach disturbance, sensitive areas are posted and beach access is often restricted.

Bermuda petrels are occasionally seen in the waters of the Gulf Stream off the coasts of North Carolina and South Carolina during the summer. Sightings are considered rare and only occurring in low numbers. Roseate terns occur widely along the Atlantic coast during the summer but in the southeast region, they are found mainly off the Florida Keys (unpublished USFWS data). Interaction with fisheries has not been reported as a concern for either of these species. Although, the Bermuda petrel and roseate tern occur within the action area, these species are not commonly found and neither has been described as associating with vessels or having had interactions with the CMP fishery. Framework Amendment 4 to the FMP for CMP

[9] Although smalltooth sawfish are typically found in the peninsula of Florida, there have been recent interactions as far north as North Carolina.

resources in the Gulf of Mexico and Atlantic Region concluded that the CMP fishery is not likely to negatively affect the Bermuda petrel and the roseate tern.

7.6 POPULATION STATUS REVIEW OF RELEVANT PROTECTED SPECIES

7.6.1 Marine Mammals

The status review of marine mammal populations inhabiting the Southwest Atlantic are discussed in detail in U.S. Atlantic and Gulf of Mexico Marine Mammal Stock Assessments. The most recent assessment was published in 2016 (Waring et al., 2016). The report presents information on stock definition, geographic range, population size, productivity rates, PBR, fishery specific mortality estimates, and compares the PBR to estimated human-caused mortality and serious injury for each stock.

7.6.2 Sea Turtles

All sea turtles that occur in U.S. waters are listed as either endangered or threatened under the ESA. The Kemp's ridley (*Lepidochelys kempii*), leatherback (*Dermochelys coriacea*), and hawksbill (*Eretmochelys imbricata*) are listed as endangered. The Northwest Atlantic Ocean DPS of loggerhead turtles (*Caretta caretta*) and the North Atlantic and South Atlantic DPSs of green turtle (*Chelonia mydas*) are listed as threatened. All five of these species inhabit the waters of the U.S. Atlantic and Gulf of Mexico.

Atlantic coastal waters provide important developmental, migration, and feeding habitat for sea turtles. The distribution and abundance of sea turtles along the Atlantic coast is related to geographic location, reproductive cycles, food availability, and seasonal variations in water temperatures. Water temperatures dictate how early northward migration begins each year and are a useful factor for assessing when turtles will be found in certain areas. Sea turtles can occur in offshore as well as inshore waters, including sounds and embayments. More information about sea turtles can be found here: https://www.fisheries.noaa.gov/sea-turtles.

7.6.3 Sturgeon, Smalltooth Sawfish, and Nassau Grouper

No estimate of the historical population size of shortnose sturgeon is available. While the shortnose sturgeon was rarely the target of a commercial fishery, it often was taken incidentally in the commercial fishery for Atlantic sturgeon. In the 1950s, sturgeon fisheries declined on the east coast, which resulted in a lack of records of shortnose sturgeon. Shortnose sturgeon has been listed as endangered since 1967. A status assessement of shortnose sturgeon was last published in 2010 (SSSRT, 2010).

In 2012, NOAA Fisheries listed four DPSs of Atlantic sturgeon *(Acipenser oxyrinchus oxyrinchus)* as endangered (NY Bight, Chesapeake Bay, Carolina, and South Atlantic DPSs) and one as threatened (Gulf of Maine). More information about Atlantic sturgeon can be found here: https://www.fisheries.noaa.gov/species/atlantic-sturgeon.

The U.S. DPS of smalltooth sawfish was listed as endangered in 2003. No accurate estimates of abundance trends over time are available, but available data, including museum records and anecdotal observations from fishers, indicate that the population has declined dramatically by about 95%. Smallooth sawfish were once common throughout their historic range, but they have declined dramatically in U.S. waters over the last century. Still, there are few reliable data available, and no robust estimates of population size exist.[10]

In 2016, NOA Fisheries listed Nassau grouper as threatened under the ESA (81 FR 42268; June 29, 2016). While the species still occupies its historical range, overutilization through historical harvest has reduced the number of individuals which in turn has reduced the number and size of spawning aggregations. Although harvest of Nassau grouper has diminished due to management measures, the reduced number and size of spawning aggregations and the inadequacy of law enforcement continue to present extinction risk to Nassau grouper. The Nassau grouper's confirmed distribution currently includes Bermuda and Florida (U.S.A.), throughout the Bahamas and Caribbean Sea. Many earlier reports of Nassau grouper up the Atlantic coast to North Carolina have not been confirmed.

7.6.4 Seabirds

The overall population status of the Bermuda Petrel is unknown. The Bermuda Petrel is a pelagic seabird, and its range and distribution at sea make it very difficult to survey. It is known to nest only on five small islets in Bermuda. Surveys are limited to the breeding grounds. The total population of the Bermuda Petrel is estimated as 101 breeding pairs (USFWS, 2013).

The roseate tern is a federally protected and endangered seabird that is mainly found in the Northern Hemisphere on the northeastern coast of North America, extending from Nova Scotia to the southern tip of Florida, as well as several islands in the Caribbean Sea. Populations in the northeastern U.S. greatly declined in the late 19th century due to hunting for the millinery, or hat trade. In the 1930s, protected under the MBTA, the population reached a high of about 8,500, but since then, population numbers have declined and stayed in the low range of 2,500 to 3,300. The species was listed in 1987 as endangered in the northeastern U.S. Populations in Florida, Georgia, North Carolina, Puerto Rico, South Carolina and the Virgin Islands are listed as threatened.[11]

The piping plover breeds on coastal beaches from Newfoundland and southeastern Quebec to North Carolina. These birds winter primarily on the Atlantic Coast from North Carolina to Florida, although some migrate to the Bahamas and West Indies. Piping plovers were common along the Atlantic Coast during much of the 19th century, but nearly disappeared due to excessive hunting for the millinery trade. The current population decline is attributed to

[10] https://www.fisheries.noaa.gov/species/smalltooth-sawfish

[11] https://www.fws.gov/northeast/pdf/Roseatetern0511.pdf

increased development and recreational use of beaches. The most recent surveys place the Atlantic population at less than 2000 pairs.[12]

7.7 EXISTING AND PROPOSED FEDERAL REGULATIONS/ACTIONS PERTAINING TO RELEVANT PROTECTED SPECIES

7.7.1 Marine Mammals

Species of large whales protected by the ESA that occur throughout the Atlantic Ocean include the blue whale, humpback whale, fin whale, North Atlantic right whale, sei whale, and the sperm whale. Additionally, the West Indian manatee also occurs in both the Gulf of Mexico and the Atlantic Ocean. These species are also considered depleted under the Marine Mammal Protection Act (MMPA). Depleted and endangered designations afford special protections from captures, and further measures to restore populations to recovery or the optimum sustainable population are identified through required recovery (ESA species) or conservation plans (MMPA depleted species). Numerous other species of marine mammals listed under the MMPA occur throughout the Atlantic Ocean.

The MMPA mandates NOAA Fisheries to develop and implement Take Reduction Plans for preventing the depletion and assisting in the recovery of certain marine mammal stocks that are seriously injured or killed in commercial fisheries. In the Atlantic, the following Take Reduction Plans have been developed, which address in part, gears that have been used to capture cobia (gillnet):

- The Atlantic Large Whale Take Reduction Plan is designed to reduce the risk of mortality and serious injury of large whales (right, fin, humpback) incidental to U.S. commercial trap/pot and gillnet fisheries, including Southeast Atlantic gillnet.
- The Bottlenose Dolphin Take Reduction Plan is designed to reduce the incidental mortality and serious injury of the western North Atlantic coastal bottlenose dolphin stock in several coastal fisheries, including the Southeast Atlantic gillnet fishery.

7.7.2 Sea turtles

Under the ESA, and its implementing regulations, taking sea turtles – even incidentally – is prohibited, with exceptions identified in 50 CFR 223.206. The incidental take of endangered species may only legally be authorized by an incidental take statement or an incidental take permit issued pursuant to Section 7 or 10 of the ESA, respectively. According to the 2015 biological opinion on CMP fisheries, green, hawksbill, Kemp's ridley, leatherback, and loggerhead sea turtles are all likely to be adversely affected by the CMP fishery (NMFS, 2015). Green, hawksbill, Kemp's ridley, leatherback, and loggerhead sea turtles are all highly

[12] https://www.fws.gov/northeast/pipingplover/overview.html

migratory, travel widely throughout the GOM and South Atlantic, and are known to occur in the area of the fishery. The 2015 biological opinion for CMP established an incidental take statement with reasonable and prudent measures and terms and conditions for incidental take coverage in the federal CMP fisheries for sea turtles takes throughout the action area.

On April 6, 2016, NMFS published a final rule (81 FR 20058) listing 11 distinct population segments (DPSs) for green sea turtles. The listing of the DPSs of green turtles triggers reinitiation of consultation under Section 7 of the ESA because the previous opinion did not consider what effects the CMP fishery is likely to have on this species, therefore NOAA Fisheries must analyze the impacts of these potential interactions. NOAA Fisheries is also in the process of identifying critical habitat, which will be proposed in a future rulemaking.

In 2013, the North Carolina Division of Marine Fisheries was issued a permit for the incidental take of listed sea turtles associated with the otherwise lawful large and small mesh gill net fishing in specified inshore estuarine areas. This permit requires North Carolina to close designated areas to avoid approaching the take limit.

Existing NOAA Fisheries regulations specify procedures that it may use to determine that unauthorized takings of sea turtles occur during fishing activities, and to impose additional restrictions to conserve sea turtles and to prevent unauthorized takings (50 CFR 223.206(d)(4)). Restrictions may be effective for a period of up to 30 days and may be renewed for additional periods of up to 30 days each. In 2007, NMFS issued a regulation (50 CFR 222.402) to establish procedures through which each year NMFS will identify, pursuant to specified criteria and after notice and opportunity for comment, those fisheries in which the agency intends to place observers (72 FR 43176, August 3, 2007). NOAA Fisheries issues a notice or regulation each year maintaining or updating the fisheries listed on the annual determination. The most recent determination was in December 2016 (81 FR 90330, December 14, 2016). NOAA Fisheries may place observers on U.S. fishing vessels, either recreational or commercial, operating in U.S. territorial waters, the U.S. exclusive economic zone (EEZ), or on the high seas, or on vessels that are otherwise subject to the jurisdiction of the U.S. Failure to comply with the requirements under this rule may result in civil or criminal penalties under the ESA.

7.7.3 Sturgeon, smalltooth sawfish, and Nassau grouper

Shortnose sturgeon (*Acipenser brevirostrum*) and Atlantic sturgeon (*A. oxyrinchus*) were listed under the ESA in 1967 and 2012, respectively. The Commission and federal government implemented a coastwide moratorium on sturgeon harvest in late 1997 and early 1998. Bycatch remains an important issue in the recovery of Atlantic sturgeon populations throughout their range (ASMFC, 2007). The National Marine Fisheries Service established a recovery plan for shortnose sturgeon in 1998.

In 2013, the Georgia Department of Natural Resources was issued a permit for the incidental take of shortnose and Atlantic sturgeon associated with the otherwise lawful commercial shad fishery in Georgia. In 2014, the North Carolina Division of Marine Fisheries was issued a permit

for the incidental take of Atlantic sturgeon DPSs associated with the otherwise lawful commercial inshore gillnet fishery in North Carolina.

The 2015 biological opinion for the Federal CMP fisheries established an incidental take statement with reasonable and prudent measures and terms and conditions for incidental take of Atlantic sturgeon (as well as sea turtles and smalltooth sawfish) throughout the action area (NMFS, 2015). In June 2016, NOAA Fisheries published proposed rules to designate critical habitat for Atlantic sturgeon (81 FR 36077; 6/3/2016 and 81 FR 35701; 6/3/2016).

The U.S. DPS of smalltooth sawfish was listed as endangered in 2003. Critical habitat was designated for it in 2009 (74 FR 45353; 9/2/2009) and a recovery plan was finalized in 2009 as well.

Harvest and possession of Nassau grouper is prohibited in the United States, Puerto Rico, and the U.S. Virgin Islands. NOAA Fisheries is evaluating potential management actions, such as critical habitat or application of the 4(d) rule in the ESA. When NMFS listed Nassau grouper as threatened, it solicited information from the public that may be relevant to the designation of critical habitat for Nassau grouper. A 4(d) rule provides regulations necessary for the conservation of any threatened species

7.7.4 Seabirds

Under the ESA and its regulations, take of Bermuda petrels, roseate terns, and piping plovers, even incidentally, is prohibited. The incidental take of an ESA listed species may only be legally authorized by an incidental take statement or incidental take permit issued pursuant to Section 7 or 10 of the ESA. No incidental takes of ESA listed bird species is currently authorized for cobia fisheries.

Section 316(c) of the Magnuson-Stevens Fishery Conservation and Management Act authorizes the Interior and Commerce Departments to undertake projects, in cooperation with industry, to improve information and technology to reduce seabird-fisheries interactions. USFWS seeks to partner with State, regional, and Federal agencies; industry; tribes; and NGOs to facilitate outreach and improve information and technology to reduce seabird bycatch in fisheries within state and Federal waters. A Memorandum of Understanding between NMFS and the USFWS (2012) describes additional collaborative efforts recommended to better understand and reduce bird bycatch in fisheries.[13]

Most actions to understand and reduce marine bird bycatch in the U.S. have occurred in Pacific waters. However, in 2011, the USFWS issued a business plan for addressing and reducing marine bird bycatch in U.S. Atlantic fisheries. The plan identified priority goals and actions to

[13] https://www.fws.gov/migratorybirds/pdf/management/mounmfs.pdf

target the following marine bird-fisheries interactions: greater shearwaters in the New England groundfish fishery, and red-throated loons in the mid-Atlantic gillnet fisheries.[14]

7.8 POTENTIAL IMPACTS TO ATLANTIC COASTAL STATE AND INTERSTATE FISHERIES

Regulations under the take reduction plans for Atlantic large whales and bottlenose dolphins have the potential to impact gill net fisheries that capture cobia as bycatch.

7.9 IDENTIFICATION OF CURRENT DATA GAPS AND RESEARCH NEEDS

7.9.1 General Bycatch Related Research Needs

The following activities would improve our understanding of bycatch of fish and protected species in the Southeast Region. These activities were identified within NOAA Fisheries' Southeast Regional Office's FY16-20 Strategic Plan[15]:

- In coordination with the Marine Recreational Information Program (MRIP), test and validate the use of on-board recording systems (e.g., electronic logbooks) for capturing information on discarded fishes and bycatch of protected species in the commercial and recreational fisheries including species, length, depth, location, and disposition; priority fisheries include shrimp (including assessing TED compliance), South Atlantic snapper grouper, other Southeast Region recreational hook-and-line fisheries, and fisheries under take reduction teams.
- Enhance existing tools (e.g., observers, logbook requirements, electronic technologies) to collect bycatch data that inform agency bycatch priorities; priority fisheries include shrimp (including assessing TED compliance), South Atlantic snapper-grouper, other Southeast Region recreational hook-and-line fisheries, and fisheries under take reduction teams.
- Invest in new, innovative fishery monitoring techniques, such as electronic fishing logbooks and video monitoring, to provide a cost effective means of producing more information to effectively quantify bycatch; priority fisheries include shrimp (including assessing TED compliance), South Atlantic snapper-grouper, other Southeast Region recreational hook-and-line fisheries, and fisheries under take reduction teams.
- Improve the discard estimates needed for informing snapper-grouper, reef fish, dolphin wahoo, and coastal migratory pelagic SEDAR assessments in the next 3-5 years.

[14] https://www.fws.gov/migratorybirds/pdf/management/focal-species/GreaterShearwater.pdf

[15] https://sero.nmfs.noaa.gov/documents/main_articles/pdfs/final_strategic_plan_october_2015.pdf

7.9.2 Marine Mammals

The following bycatch related research needs were identified within NOAA Fisheries' Southeast Regional Office's FY16-20 Strategic Plan[16]:

- Characterize frequency, scope, and scale of bottlenose dolphin interactions with recreational rod/reel fishing gear.
- Enhance and increase observer coverage for gillnet fisheries under the bottlenose dolphin take reduction plans by focusing observer coverage in specific geographic areas and fisheries, improving observer data collection and quality, and measures of fishing effort, as well as coordinating with state observer programs.
- Experimentally investigate possible attractants/deterrents for pilot whale/Risso's dolphins to pelagic longline gear and gear modifications to decrease the likelihood of hooking and/or entanglement.

7.9.3 Sea Turtles

Observer coverage of recreational fisheries has been relatively limited (Boyd, 2016). Expansion of observer programs to recreational hook-and-line fisheries would help determine the level of protected species interactions in those fisheries.

The following bycatch related research needs were identified within NOAA Fisheries' Southeast Regional Office's FY16-20 Strategic Plan[17]:

- Improved methods/models/techniques for estimating sea turtle bycatch in commercial fisheries including accounting for life stage and recovery unit (where applicable) impacts.
- Produce annual bycatch estimates for the shrimp trawl fisheries, pelagic longline, Gulf and South Atlantic reef fish, and Gulf and South Atlantic shark gillnet and bottom longline fisheries.
- Implement monitoring program to assess bycatch of sea turtles in recreational fisheries, including piers, jetties, head boats and FMP covered recreational fisheries.
- Develop tools to reduce recreational fishing bycatch including on piers/jetties.
- Develop and improve analytic methods for sea turtle bycatch estimation and sampling design to optimally allocate observer coverage and identify gaps and recommend improvements/changes to improve sea turtle bycatch information.
- Ensure sea turtle bycatch data collected across fisheries is standardized and contains all necessary elements to assess post interaction mortality and to inform conservation management.

[16] https://sero.nmfs.noaa.gov/documents/main_articles/pdfs/final_strategic_plan_october_2015.pdf
[17] https://sero.nmfs.noaa.gov/documents/main_articles/pdfs/final_strategic_plan_october_2015.pdf

- Conduct gear research and technology transfer to reduce sea turtle interactions and mortalities in both domestic and foreign trawl, longline, and gill net fisheries.
- Develop sea turtle observer programs for commercial fisheries not currently observed but for which data are needed.

7.9.4 Sturgeon

NOAA Fisheries Southeast Regional Office has identified the following research needs for Atlantic sturgeon[18]:

- Identification of spawning and nursery grounds and overwintering areas.
- Long-term population monitoring programs.
- Population genetics.
- Toxic contaminant and biotoxin impacts and thresholds.
- Develop fish passage devices for sturgeon.
- Impacts of dredging.
- Reducing bycatch and bycatch mortality.

Regarding bycatch, very little information is available on current levels of bycatch and bycatch mortality occurring in fisheries in the Southeast. Research is needed to identify the spatial and temporal distribution of bycatch throughout the species range, and to identify measures that can be implemented to reduce bycatch and/or bycatch mortality.

NOAA Fisheries Southeast Regional Office has identified the following research needs for shorthnose sturgeon[19]:

- Genetic assessments.
- Surveys and presence/absence studies.
- Identification of spawning and nursery grounds and overwintering areas.
- Develop fish passage devices for sturgeon.
- Contaminant research.
- Impacts of dredging.

7.9.5 Sawfish

The following research needs were identified within NOAA Fisheries' Southeast Regional Office's FY16-20 Strategic Plan[20]:

[18] https://sero.nmfs.noaa.gov/protected_resources/sturgeon/documents/ats_research_priorities.pdf

[19] https://sero.nmfs.noaa.gov/protected_resources/sturgeon/documents/sns_research_priorities.pdf

[20] https://sero.nmfs.noaa.gov/documents/main_articles/pdfs/final_strategic_plan_october_2015.pdf

- Develop a functional assessment model of juvenile sawfish habitat use within the critical habitat units.
- Determine the post-release mortality of sawfish from various types of fishing gear.
- Investigate movements (short-term and seasonal) of adult sawfish to identify aggregation habitats and habitat use patterns.
- Develop habitat models to identify potential sawfish nursery habitats in areas unsurveyed or outside of the currently known habitat areas.
- Continue current sawfish surveys as these will be the basis of monitoring recovery.
- Conduct juvenile sawfish surveys beyond the boundaries of current surveys (e.g., east coast or north of Charlotte Harbor) to refine a baseline abundance estimates and monitor recovery.
- Conduct adult surveys throughout the range of smalltooth sawfish to determine a relative abundance estimate, the distribution of adults, and to identify sawfish mating and pupping habitats.

7.9.6 Seabirds

- Initiate and expand observer coverage/bycatch monitoring and collection and analysis of bird bycatch data to better understand extent of bird bycatch and identify bycaught bird species within the target fisheries (state waters).
- Collaborate with fishermen to develop and test gear and identify deployment practices that reduce bird bycatch within the target fisheries (state waters).
- Conduct outreach activities to facilitate sharing of bird bycatch information in the target fisheries among agencies, industry and the public.

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APPENDIX I

Table A1. Commercial landings by state, in pounds, 1981-2018. 2018 data is preliminary and provided by individual states. * indicates confidential data. Source: ACCSP, queried April, 2019.

Year	NY	NJ	DE	MD	VA	NC	SC	GA	Total
1981					1,400	5,260	10,137	1,126	17,923
1982				100	2,000	10,574	16,286	2,304	31,264
1983					900	4,279	11,357	1,497	18,033
1984					1,900	6,701	2,523	2,570	13,694
1985				100	2,300	6,640	1,464	611	11,115
1986					1,200	18,303	3,690	2,561	25,754
1987	100				300	32,672	4,718	2,705	40,495
1988		100			5,700	15,690	5,224	1,924	28,638
1989		200		300	10,600	14,898	6,835	440	33,273
1990	17	1,649		431	16,532	21,938	1,802	1,367	43,736
1991		1,155		2,045	11,743	23,217	3,005	2,651	43,816
1992		1,037		1,882	6,110	18,534	6,925	2,187	36,675
1993		792		471	5,986	20,431	9,092	2,730	39,502
1994	165	483		*	7,817	30,586	5,488	2,483	47,022
1995	411	1,736		*	22,011	35,143	6,133	1,543	66,977
1996	*	2,295		*	*	33,404	4,483	675	40,857
1997	89	3,989		377	11,710	42,063	3,513	1,742	63,484
1998	60	2,853		*	13,419	22,197	3,481	*	42,010
1999	46	1,432		*	5,808	15,491	2,568	*	25,345
2000	101	1,762		*	7,525	28,754	2,974	*	41,116
2001	252	683		*	*	24,718	4,395	*	30,048
2002	70	2,086		*	11,445	21,058	5,007	*	39,666
2003	84	621	*	*	7,387	21,313	4,746	*	34,151
2004	758	576		211	6,143	20,162	4,459	705	33,014
2005	*	329		*	6,108	17,886	4,192	*	28,515
2006	*	*	*	398	6,369	20,270	2,672	*	29,709
2007	*	1,650		*	6,086	19,005	3,786	245	30,771
2008	*	*		*	6,978	22,047	3,464	*	32,488
2009	*	1,134		196	6,197	31,898	2,275	*	41,701
2010	*	270		*	8,852	43,715	2,749	*	55,586
2011	408	*		*	8,522	19,924	4,466	*	33,320
2012	152	701		*	5,389	31,972	3,731		41,945
2013	841	885	*	*	11,073	35,456	4,254	*	52,509
2014	311	366		*	22,345	41,798	3,880	*	68,701
2015	235	226		*	27,722	52,684	2,763	*	83,631
2016	129	312	*	*	36,460	48,244	4,532	*	89,677
2017	81	*	*	*	36,384	20,842	4,590	*	61,898
2018**					25,194	20,447			

Table A2. Cobia recreational harvest (A + B1) by state, in pounds, 1981-2018, with effort estimated by or calibrated to the Coastal Household Telephone Survey (CHTS). 2018 data is preliminary. Source: MRIP, queried April, 2019.

Year	NY	NJ	DE	MD	VA	NC	SC	GA	TOTAL
1981					4,705	6,484			11,189
1982						66,342	22,215	24,997	113,554
1983				0				20,894	20,894
1984						191,237	125,332	78,428	394,997
1985	0			49,528	103,391	20,985	104,178	17,817	295,899
1986		108,701		4,416	77,695	178,128	145,843	15,252	530,035
1987					24,956	79,944	44,033	17,994	166,927
1988						106,749	42,133	3,927	152,809
1989				65	105,819	115,373	60,962	38,687	320,905
1990					86,345	118,387	16,923	16,677	238,331
1991				23,667	412,996	128,710	123,868		689,241
1992					159,502	120,261	40,285	24,977	345,025
1993					93,858	94,990			188,848
1994	0				159,460	94,394	31,994		285,848
1995					200,794	144,757	16,629		362,180
1996					152,759	99,867	82,476	9,347	344,449
1997					358,225	154,862	28,916	1,555	543,558
1998					141,566	125,545	35,561		302,673
1999				6,787	101,308	47,477	178,753	5,192	339,517
2000					324,562	118,349	763		443,674
2001					367,003	74,757		10,074	451,834
2002					75,489	209,043	10,691	1,172	296,395
2003				0	37,213	84,773	425,939	342	548,266
2004					35,189	294,042	649,803	44,045	1,023,079
2005			818		516,764	239,195	3,130	774	760,680
2006		17,035			898,542	184,300	53,634	1,733	1,155,244
2007					352,071	106,213	271,431	46,729	776,444
2008					116,420	82,566	32,497	320,174	551,657
2009					445,993	166,195	62,332	2,009	676,530
2010				1,069	254,414	498,581	67,946	89,840	911,850
2011					107,424	145,796		74,651	327,871
2012		6,796			26,537	104,106	201,223	97,766	436,427
2013					224,442	506,067	9,873	25,183	765,565
2014					173,772	247,386	26,439	19,079	466,677
2015					882,022	695,842	124,933	26,499	1,729,296
2016				193	915,151	298,090	76,754		1,290,187
2017					252,683	259,737		328	512,748
2018			4,840	3,254	843,994	364,810	36,683	6,226	1,259,807

Table A3. Cobia recreational harvest (A + B1) by state, in pounds, 1981-2018, with effort estimated by or calibrated to the mail-based Fishing Effort Survey. 2018 data is preliminary. Source: MRIP, queried April, 2019.

Year	NY	NJ	DE	MD	VA	NC	SC	GA	Total
1981					5,788	3,726			9,514
1982						8,430	9,991	26,075	44,496
1983				0		0		73,504	73,504
1984						259,354	194,569	130,102	584,025
1985	0	0		63,281	78,704	2,720	193,778	47,167	385,650
1986		48,781		20,807	134,568	533,982	76,547	5,633	820,318
1987					21,167	81,833	4,477	9,989	117,466
1988						103,975	62,918	2,434	169,327
1989				25	262,795	208,259	91,078	50,169	612,326
1990					86,491	188,539	22,471	37,195	334,696
1991				2,095	118,737	266,633	477,604		865,069
1992					229,977	317,628	53,255	47,111	647,971
1993					113,636	168,142			281,778
1994	0		0		196,525	169,168	26,051		391,744
1995					637,842	302,745	20,718		961,305
1996					1,287,826	102,899	821,361	11,902	2,223,988
1997					516,108	129,299	90,931	1,498	737,836
1998					379,056	117,754	18,991		515,801
1999				1,387	164,817	101,465	100,955	3,446	372,070
2000					383,077	91,143	1,267	0	475,487
2001					283,256	121,751		8,354	413,361
2002					242,697	319,178	3,446	3,557	568,878
2003				98,524	120,097	223,508	940,447	459	1,383,035
2004		0			76,408	420,684	426,301	106,405	1,029,798
2005			5,044		792,006	401,557	1,549	899	1,201,055
2006		6,768			1,596,234	196,330	148,146	1,918	1,949,396
2007					499,736	218,447	538,625	63,024	1,319,832
2008		0			182,451	167,463	37,124	499,198	886,236
2009					855,629	320,075	94,996	1,831	1,272,531
2010		0		1,179	557,907	808,227	100,614	230,865	1,698,792
2011					341,751	399,192	0	182,799	923,742
2012		60,473		0	47,547	102,077	214,512	512,499	937,108
2013					488,181	980,541	24,005	43,915	1,536,642
2014					499,218	645,427	79,171	42,481	1,266,297
2015		0			1,166,000	1,925,762	434,899	102,917	3,629,578
2016				307	1,505,528	838,363	159,345	0	2,503,543
2017					488,287	872,861	0	390	1,361,538
2018		0	9,664	3,254	1,936,274	561,526	160,191	6,226	2,677,135

Atlantic States Marine Fisheries Commission

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MEMORANDUM

January 18, 2018

To: **South Atlantic State/Federal Fisheries Management Board**

From: **Atlantic Croaker Technical Committee and Spot Plan Review Team**

Subject: **Recommended Updates to the Annual Traffic Light Analyses for Atlantic Croaker and Spot**

In 2017, benchmark stock assessments were completed for Atlantic croaker and spot. Neither of these assessments were recommended for management use due in part to conflicting signals from abundance and harvest time series. To improve the annual Traffic Light Analyses (TLA) conducted for these species, which monitor these fisheries using abundance and harvest time series, the South Atlantic State/Federal Fisheries Management Board (Board) tasked the Atlantic Croaker Technical Committee (TC) and Spot Plan Review Team (PRT) with exploring potential updates to the TLAs for both species.

The TC and PRT recommend the following changes to the annual Atlantic croaker TLA:

1. Incorporation of indices from the Chesapeake Bay Multispecies Monitoring and Assessment Program (ChesMMAP) and the South Carolina Department of Natural Resources (SCDNR) Trammel Net Survey into the adult composite characteristic index, in addition to the currently used indices from the Northeast Fishery Science Center (NEFSC) Multispecies Bottom Trawl Survey and Southeast Area Monitoring and Assessment Program (SEAMAP).
2. Use of revised adult abundance indices from the surveys mentioned above, in which age-length keys and length composition information are used to estimate the number of adult (age 2+) individuals caught by each survey.
3. Use of regional metrics to characterize the fisheries north and south of the Virginia-North Carolina state border. The ChesMMAP and NEFSC surveys would be used to characterize abundance north of the border, and the SCDNR Trammel Net and SEAMAP surveys would be used to characterize abundance south of the border.
4. Change/establish the reference time period for all surveys to be 2002-2012.
5. Change the triggering mechanism to the following: Management action will be triggered according to the current 30% red and 60% red thresholds if both the abundance and harvest thresholds are exceeded in any 3 of the 4 terminal years.

The TC and PRT recommend the following changes to the annual spot TLA:

1. Incorporation of indices from ChesMMAP and the North Carolina Division of Marine Fisheries (NCDMF) Pamlico Sound Survey, Program 195, into the adult composite characteristic index, in addition to the currently used NEFSC and SEAMAP indices.
2. Use of revised adult abundance indices from the surveys mentioned above, in which age-length keys and length composition information are used to estimate the number of adult (age 1+) individuals caught by each survey.
3. Use of regional metrics to characterize the fisheries north and south of the Virginia-North Carolina state border. The ChesMMAP and NEFSC surveys would be used to characterize abundance north of the border, and the NCDMF Program 195 and SEAMAP surveys would be used to characterize abundance south of the border.
4. Change/establish the reference time period for all surveys to be 2002-2012.
5. Change the triggering mechanism to the following: Management action will be triggered according to the current 30% red and 60% red thresholds if both the abundance and harvest thresholds are exceeded in any 2 of the 3 terminal years.

In addition to the above changes to the TLA triggering mechanisms, the TC/PRT recommend annual PRT review of juvenile abundance indices and shrimp trawl discards for both species. The TC/PRT recommend these data be used regularly only as supplemental information, but with the potential for PRT recommendation of management action if these or other data indicate action is warranted, even in years when management action is not required by the triggering mechanisms.

A summary of the call on January 16, 2018, on which the TC and PRT discussed and decided upon these changes is attached for your reference.

Enc: Atlantic Croaker TC/Spot PRT Jan 16, 2018, Call Summary

Atlantic States Marine Fisheries Commission

Atlantic Croaker Technical Committee and Spot Plan Review Team

Call Summary

January 16, 2018
10:00 a.m.-12:00 p.m.

Attendees

Technical Committee/Plan Review Team: Tim Daniels (NJ), Michael Grego (DE), Harry Rickabaugh (MD), Ryan Jiorle (VA), Dan Zapf (NC), Chris McDonough (TC Chair, SC), Dawn Franco (GA), Joseph Munyandorero (FL)

ASMFC Staff: Jeff Kipp, Michael Schmidtke

Summary

A conference call was held on January 16, 2018 to review potential changes to the Traffic Light Analysis (TLA) for both spot and Atlantic croaker. Jeff Kipp gave an update of the work done by the sub-group analyzing the available data and exploring alternative configurations of the TLA to improve its utility in informing the board on current stock status. The use of Relative Exploitation along with the TLA was also presented and discussed. The TLA and indices used for both species are very similar. Therefore spot was reviewed and discussed in detail first, including working through a decision tree to provide a recommended TLA configuration to the board. Once this was completed croaker was reviewed with some discussion where there were differences compared to spot, and the same decision tree was used to develop a recommended Atlantic croaker TLA. The discussion points below apply to both species unless otherwise noted.

Jeff presented a background of the current TLAs and how the signals given by the Harvest metric (commercial and recreational landings) and the Adult Abundance metric (independent offshore trawl surveys) do not agree, particularly a continued decline in harvest in recent years, with generally increasing or stable index values. Closer examination of the data indicated the indices were being influenced by age zero fish, particularly in years with strong recruitment. Indices were split into adult and juvenile components. The SEAMAP spring index was determined to be a better indicator of adult abundance, and the fall index better indexes juveniles. Inclusion of additional indices including ChesMMAP for spot and croaker, the South Carolina trammel net survey for croaker and the NC DMF program 195 for spot were also explored, since they have adequate time series and provide information on adult abundance in inshore waters. The SC trammel net survey also provides a wider range of adults. Unlike SEAMAP and NMFS, the NC DMF P195 and ChesMMAP are showing a steady decline in abundance in recent years. There was also evidence of differences in the Mid-Atlantic and South Atlantic trends, suggesting a regional split may be appropriate. The working group also suggesting moving to a two out of three years trip mechanism for spot (as compared to the current 2 consecutive years) and 3 out of 4 years for croaker instead of the current 3 consecutive years.

A question was raised as to why juvenile indices are only used as informative and not as a trigger mechanism. The reason for this is the lack of a significant stock recruit relationship for either species, leading to environmental factors having a stronger influence on recruitment than adult abundance.

The use of relative exploitation in place of the TLA was discussed. The effects of the shrimp trawl fishery would not be incorporated in the annual trigger exercise, potentially affecting results, but would be considered as an informative index in a similar manner to the juvenile indices. The group felt the TLA was more familiar and easier to understand for the board and the general public. The relative exploitation methods presented were also very conservative, and likely would need more work on determining the appropriate reference points. For these reasons the consensus was to continue with the TLA.

In discussing which indices to include, there was some concern raised that the offshore indices, particularly the NMFS trawl survey, may not be accurately tracking adult abundance of these species, even when split out by age. This would be due to timing of the migration of fish offshore compared to the timing of the survey, in some years these two events may occur at the same time, but in others they may not. Changes in habitat use from inshore to offshore may also be occurring, so the consensus was to continue using these surveys and to add in the inshore surveys as well (2 inshore and 2 offshore for each species). The group also agreed to use the age 1+ indices for spot, and the age 2+ indices for croaker.

Whether to split the TLAs regionally into Mid-Atlantic (VA north) and South Atlantic (NC south) was discussed in detail. Clarification was made that the split would be due to fishery differences and not because the biology of the species suggested it was needed. Recruitment indices tend to track across regions, but landings and index values show more continuity within region than across. It was also pointed out that the shrimp trawl fishery occurs primarily in the south Atlantic, and the dynamics of Chesapeake Bay likely differ from southern estuaries. Including ChesMMAP in the Mid-Atlantic region requires changing the reference time period to begin in 2002 as this was the first year for the ChesMMAP survey. By using regional TLAs the south Atlantic could keep a longer time series, although the same TLA reference time period would be used for both regions. Consensus was reached that the TLAs should be split by region due to differences in the fishery trends and characteristics.

Based on the decisions above the reference period for both species needed to be changed to accommodate the shorter time series of the ChesMMAP survey. The group discussed whether to have different reference periods for each region, and whether the 2002-2012 time frame was appropriate for both species. The consensus was to maintain consistency between regions, and that the 2012 cutoff was appropriate to avoid including several very low harvest years in the recent time frame, but still include variability within the data sets.

Clarification was given as to how the current 30%/60% red thresholds were selected, and consensus was to continue using those values.

The tripping mechanism was discussed for each species. The current requirement of two (spot) or three (croaker) consecutive years of red above either of the thresholds to trigger management may be too stringent. Since recruitment is not strongly tied to abundance, a

single strong year-class from a low adult abundance could potentially provide a value of red below 30%, requiring two or three more very poor years before management would be considered. If this occurred more than once, with a continued decline in long term adult abundance, this could lead to recruitment failure, particularly in spot. Group consensus was for a two out of three years above a red threshold occurring for spot and three out of four years for croaker, and both metrics would need to trip in the same three (spot) or four (croaker) year time frame.

There also was a discussion on the inclusion of effort data for either the recreational or commercial fishery. Primarily revolving around the reliability of effort data that could be produced for these species. It was generally agreed upon that including that information would be ideal, but developing a reliable effort data stream would be a very large undertaking, that may not prove successful.

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MEMORANDUM

July 31, 2018

To: **South Atlantic State/Federal Fisheries Management Board**

From: **Atlantic Croaker and Spot Plan Development Team**

Subject: **Recommendations for Management Response to Triggers from Updated Traffic Light Analyses**

At the May 2018 meeting, the South Atlantic State/Federal Fisheries Management Board (Board) tasked the Atlantic Croaker and Spot Plan Development Team (PDT) with exploring potential responses to management triggers that would result from incorporation of TC-recommended updates to the annual Traffic Light Analyses (TLA) for Atlantic croaker and spot. The Board provided guidance on a goal of management measures that would achieve a red level of 35% or less within a two-year timeframe. This goal would only apply to the abundance metric, as the harvest metric would need to be re-evaluated under a new management regime.

The PDT met twice via conference call to address this task. Abundance of Atlantic croaker is strongly associated with environmental variables (Hare and Able 2007, Norcross and Austin 1981), historically expressed through a cyclical pattern in commercial landings. Additionally, the impetus for revision to the TLA was a lack of correlation between current harvest and abundance metrics. Thus, a reduction in harvest would not necessarily be expected to result in a proportional increase in abundance. Atlantic croaker are currently in a low period for commercial harvest, similar to what was previously observed during the early 1980s and followed by an increase into a high period in the late 1990s to early 2000s. Relationships between spot abundance or harvest and environmental variables are not as well-studied as Atlantic croaker, and spot do not exhibit a similar cyclical landings pattern.

Therefore, rather than focusing on a specific numeric goal for percentage red that may not be realistically attainable through management alone, the PDT recommends an alternative goal of initially establishing management measures for both the Atlantic croaker and spot fisheries, which currently have no coastwide management requirements in their respective Fishery Management Plans (FMP). These measures would ideally be suited for long-term management of these species, with the ability for them to be altered in reaction to management triggers from the TLAs. If management action is triggered, as is the case for both species in the Mid-Atlantic region under the updated TLAs, the PDT recommends that measures put in place be re-evaluated as defined in Addendum II to the Atlantic Croaker FMP (after 3 years) and Addendum I to the Spot FMP (after 2 years) to determine if they are eliciting the desired response and evaluate if adjustments should be made. For both Atlantic croaker and spot, the PDT recommends commercial and recreational

management measures in the form of seasons and trip limits (vessel or bag). Given the close association of Atlantic croaker and spot fisheries, management through an aggregate bag or vessel limit could also be considered. State-level minimum size limits are currently used for commercial and recreational Atlantic croaker fisheries in Delaware and Maryland. Size limits can be a more reliable way to restrict harvest than seasons or an aggregate bag limit due to annual variations in migration timing and masked changes in aggregate bag composition. Determination of whether a coastwide minimum size limit would be useful and an appropriate minimum size would require further discussion and evaluation of size selectivity by gears used for Atlantic croaker throughout the management unit relative to biological information on growth and maturity. Minimum size limits have not been applied to spot at the state level, and may be less useful due to the species' fast growth and early maturity.

The PDT also reviewed literature on movement and connectivity of Atlantic croaker and spot between regions specified by the updated TLA as Mid-Atlantic (New Jersey-Virginia) and South Atlantic (North Carolina-Florida). Although movement literature was sparse, genetic and life history studies, as well as commercial landings trends, suggest connectivity across the VA-NC border. The PDT recognizes that Mid- and South Atlantic regions were designated in the TC's recommendations due to the incorporation of regional abundance indices – such as indices from the Chesapeake Bay Multispecies Monitoring and Assessment Program (ChesMMAP), the South Carolina Department of Natural Resources Trammel Net Survey, and North Carolina Division of Marine Fisheries Program 195 survey – rather than any stock distinction between these regions. Additionally, the 2010 (ASMFC 2010) and 2017 (unpublished) stock assessments for Atlantic croaker and the 2017 (unpublished) stock assessment for spot were conducted for single, coastwide stocks spanning the entire management units (both New Jersey-Florida). Given the connectivity of fish north and south of the VA-NC border, the PDT recommends that any management response to the updated, regional TLA triggers be executed on a coastwide basis. This could be accomplished through an equal response throughout the management unit, or through a form of apportioned response in which all states take on restricted measures, but states of the triggering region enact stricter measures than those of the non-triggering region. For example, if the whole coast were to implement a 100-pound trip limit and the Mid-Atlantic TLA triggers under that management regime, a response could be an 80-pound trip limit in the Mid-Atlantic and a 90-pound trip limit in the South Atlantic.

To summarize, in response to management triggers from the TC-recommended TLA updates, the PDT recommends that long-term commercial and recreational coastwide management measures be established for each species in the form of seasons and/or trip (vessel or bag/possession) limits. These measures should be re-evaluated in three years for Atlantic croaker and two years for spot to determine if they are eliciting the desired response and evaluate if any adjustments should be made. Use of coastwide or area- or gear-specific minimum size limits for Atlantic croaker could be further evaluated if deemed potentially useful from a management perspective.

References

ASMFC. 2010. Atlantic Croaker 2010 Benchmark Stock Assessment. Washington (DC): ASMFC. 366 p.

Hare, JA and KW Able. 2007. Mechanistic links between climate and fisheries along the east coast of the United States: explaining population outbursts of Atlantic croaker (*Micropogonias undulatus*). Fisheries Oceanography 16(1): 31-45.

Norcross, BL and HM Austin. 1981. Climate scale environmental factors affecting year class fluctuations of Chesapeake Bay Croaker, *Micropogonias undulatus*. Special Scientific Report No. 110: Gloucester Point, Virginia: Virginia Institute of Marine Science, 78 pp.

Virginia Summary on Atlantic Croaker and Spot Issues
Presented to the VMRC Finfish Management Advisory Committee Meeting 1/9/19
Attendance: General Public 15. FMAC Members 7 of 14. VMRC Staff: 7

Comments from Meeting

Size Limits:

- Most spoke against size limits.
- It would eliminate bait in recreational fisheries and increase culling and dead discards in commercial fisheries.
- There was a question on how Maryland utilizes their 9" minimum size limit to manage their croaker fishery.
- Need to mirror NC regulations or it won't work.
- A commercial haul seiner supported methods to avoid catching small fish since they have little value and increase cull time.
- 3 committee members spoke against, 2 from the general public spoke against - all on the basis that it would limit bait options.

Possession Limits

- Both the committee and the general public would support a recreational bag limit if it was high enough. Suggested ranges were from 30 to 50 fish per person per day.
- Members of the public, both private anglers and headboat captains, admitted that the average angler is presently catching less than 15 fish per trip.
- The higher bag limits would be there to allow the use of the fish as bait for offshore species.
- 2 committee members spoke in favor, one with a limit of 15-30 and one with a limit of 50.
- 3 general public in favor, two in favor of 25-30 fish and one in favor of 50 fish.
- 1 Committee member spoke against, needing more than 50 for bait for a full day of fishing.

Seasonal Closures

- No opinions regarding recreational fishing
- No support commercially. Those that spoke claimed the season is highly variable and they need the opportunity to fish when the croaker/spot are available.

General

- A commercial fisherman commented that we a protecting large predators like spiny dogfish that consume large numbers of spots and croakers
- Several committee members and those in the general public expressed concern that abundance of these species is cyclic and driven by environmental conditions. They wanted assurance that any regulation would have to be easily removable when abundance increases again.
- The NC shrimp trawl fishery makes a vastly larger contribution to removals than all Virginia fisheries combined.

Items for further consider

- A recreational bag limit, or aggregate bag limit (spot and croaker) for the recreational fishery.
- A commercial season restriction. A similar percent reduction (as a result of the recreational bag limit) should be applied to the major sectors of the commercial fishery (haul seine, pound net, and gill net).
- Develop protocols for observer coverage for the commercial haul seine fishery.
- Develop a workgroup from membership of FMAC and members of the various fishing sectors to explore and vet potential options. This workgroup will have its first meeting April 22nd.

ROY COOPER
Governor

MICHAEL S. REGAN
Secretary

STEPHEN W. MURPHEY
Director

March 29, 2019

MEMORANDUM

TO: ASMFC South Atlantic State/Federal Fisheries Management Board

FROM: Daniel Zapf and Chris Batsavage, NC Division of Marine Fisheries

SUBJECT: Public input on potential Atlantic States Marine Fisheries Commission management measures for spot and Atlantic croaker

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The South Atlantic State/Federal Fisheries Management Board (Board) requested member states seek public comment regarding potential management measures for spot and Atlantic croaker that could be considered in response to declining trends in harvest and abundance prior to taking action on approval of the Traffic Light Analysis (TLA) revisions. The North Carolina Division of Marine Fisheries (Division) accepted written comments and held three in person public comment meetings. Below is a summary of the input the Division received.

Public Meeting Attendance

There were 23 attendees from the public at the public meeting in Manteo and Division staff included Chris Batsavage, Daniel Zapf and Odell Williams. A total of six members of the public attended the Morehead City public meeting, and Division staff included Chris Batsavage, Daniel Zapf, Tina Moore and Brian Gupton. At the Wilmington public meeting there were 19 attendees from the public, and Division staff included Chris Batsavage, Daniel Zapf, Chris Stewart and Anne Markwith. Attendance almost entirely consisted of individuals affiliated with the commercial fishing industry at all of the public meetings.

Summary of In-Person Public Comment

The Division sought public comment on potential Atlantic States Marine Fisheries Commission (ASMFC) management measures for spot and Atlantic croaker in Manteo at the Dare County Commissioners Office on February 25th, in Morehead City at the N.C. Division of Marine Fisheries' Central District Office on February 26th and in Wilmington at the N.C. Department of Environmental Quality's Wilmington Regional Office on February 27th. The Division presented information about current management of spot and Atlantic croaker, the ASMFC proposal to revise the TLA used to monitor the spot and Atlantic croaker stocks, and an overview of the spot

and Atlantic croaker fisheries in North Carolina. After background information was presented, the floor was opened for questions and comments from the public.

Public comments were overwhelmingly in favor of no new management measures for spot or Atlantic croaker. The public suggested declines in spot and Atlantic croaker commercial landings were the result of increased commercial fishing regulations causing less fishing effort. In Manteo and Morehead City the public commented that management measures for weakfish led to effort declines in multiple fisheries (gill nets, long haul seines, sciaenid pound nets) that also catch Atlantic croaker and spot, and these measures did not recover the weakfish stock. In Morehead City and Wilmington there was discussion of the small mesh gill net prohibition within 100 yards from shore in the ocean to reduce bottlenose dolphin takes essentially eliminating the spot fishery. In the southern areas there was also concern that changes to minimum gill net mesh size regulations would have negative consequences on the sea mullet (*Menticirrhus sp.*) fishery. There was also concern that the harvest component of the TLA might not adequately monitor the stock or the fishery because there is no effort data included.

Much of the in-person public comment focused on natural processes and how they affect these species. The cyclical nature of Atlantic croaker abundance was mentioned by several people. The public indicated strongly that changes in the environment, including climate change and declining water quality and habitat in the sounds and nearshore ocean waters, are causing these species to move further north and/or farther offshore. In addition, the public felt that increased predation on these species by red drum, striped bass and cormorants were causing declines in the populations.

The public asked questions about specific management measures that have been considered and Division staff indicated that at this point in the process nothing specific has been discussed. Public input did suggest that any new management measures would likely just increase dead discards and minimum size limits would not be appropriate because they would cause targeting of female fish and would cause issues with fisheries that use spot and Atlantic croaker as bait. There were also suggestions that more should be done to understand how the environment impacts stock dynamics of these species and attempt to incorporate that into monitoring.

Summary of Written Comments

The Division accepted written public comments from February 14 through March 15, and received online written comments from 18 individuals (20 comments) and written comments via email from two individuals.

Most of the written comments stated there had been declines in the spot and Atlantic croaker populations and nearly all (19 of 22) mentioned shrimp trawl bycatch as the primary source of population declines for these species. The preferred management action expressed in most written comments was to ban or limit trawling in at least some portion of the state, though there were also suggestions to increase minimum mesh sizes in gill nets, ban gill nets, ban haul seines, implement a creel limit in the recreational fishery, and eliminate the use of nets for recreational purposes with the exception of cast nets.

Very few written comments addressed management measures included as potential management options in informational material provided by the Division on this topic (i.e., trip/creel limits, season, size limits). Size limits were not supported as a management measure in two written comments with one comment stating that all measures would be supported, with the exception of size limits, if they are done in conjunction with limits to or a ban on trawling in inshore waters.

There was one comment supporting the implementation of a larval stocking program for both spot and Atlantic croaker and one comment that stated management decisions should not be made during hurricane years because of the potential for false data.