Atlantic States Marine Fisheries Commission

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MEMORANDUM

October 10, 2017

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

From: **Dr. Louis Daniel and Michael Schmidtke**

Subject: **Cobia Draft FMP Public Hearing Summaries**

In September, 2017, Public Hearings discussing management options of the ASMFC Cobia Draft Fishery Management Plan were held in Virginia, North Carolina (two hearings, one in Hatteras and the other in Morehead City), South Carolina, and Georgia (via webinar). These hearings are summarized below. A full summary of all Public Comment submitted on this document will be made available after the closure of the written Public Comment on October 10, 2017, but prior to the South Atlantic Board Meeting on October 19, 2017.

Enc: Public Hearing Summaries (VA; Hatteras, NC; Morehead City, NC; SC; GA)

M17-105

Cobia Draft Fishery Management Plan Public Hearing Summary
Newport News, Virginia
September 12, 2017
11 Attendees

Staff: Dr. Louis Daniel (ASMFC), Joe Cimino (VMRC), Ryan Jiorle (VMRC), Sydney Alhale (VMRC), Alex Aspinwall (VMRC)
Attendees: Wes Blow, Mike Avery, Travis Kemp, Billy Gorham, Charles Meredith, Zack Hoffman.

There were no comments provided on the specific management options presented.

Additional Comments:
Attendees expressed concern about recreational landings estimation methods.

The group also discussed *de Minimis* issues and concerns regarding fish moving in to Maryland waters and the belief that management measures need to be implemented in Maryland.

Mike Avery raised concerns regarding the time to consolidate all the comments and being able to distill those comments for Board review. Dr. Daniel explained that all comments are provided to the Board as received and summarized by staff and that changes to the draft are directed by the Board, not staff.

Wes Blow raised concerns related to the harvest of larger fish and suggested a slot limit or large fish limit in addition to the vessel limits. Mr. Blow also raised concerns over the allocations and felt Virginia was being disadvantaged by the methods presented. VMRC staff and Dr. Daniel explained the reasoning behind the options presented for recreational landings allocation reference periods.

Billy Gorham expressed concerns related to ASMFC involvement in the plan. While there seemed to be general agreement that an ASMFC plan would provide the states with more flexibility to manage their specific fisheries, Mr. Gorham state that any ASMFC involvement should be delayed until after the new stock assessment is completed or full management authority is transferred from the SAFMC to the ASMFC for Cobia. The attendees all appeared to support these comments.

ASMFC Cobia Meeting
Newport News VA
9/12/17

Name	City	email
Louis Daniel	Morehead City	sciaenops1@gmail.com
Wes Bloch	N.N.	wesbmg2000@cox.net
Mike Avery	Hampton	mike@averys.net
Travis Kemp	Moyock	Kempbrian@gmail.com
Bill Gorham	Southern Shores	GetBowledup40@gmail.com
Charles Meredith	Yorktown	Charlesmeredith1@Yahoo
Zack Hoffman	Seaford	~~Salttreated~~fishing@gmail

VA - Joe Cimino, Ryan Jiorle Sydney Althale Alex ~~Aspinwall~~

Cobia Draft Fishery Management Plan Public Hearing Summary
Morehead City, North Carolina
September 20, 2017
9 Attendees

Meeting Staff: Michelle Duval (NC DMF), Chris Batsavage (NC DMF), Anna Beckwith (SAFMC), Steve Poland (NC DMF)
Meeting Participants: Michael Shutak, Joe Smith, Heather, Michelle Holmes, Jacob Krausel

No specific comments addressing the issues of the FMP were made. Several questions were discussed:

- How is discard mortality accounted for? In the assessment via discard mortality rates that are incorporated.
- Reference to 6 fish/vessel seems liberal – what was the consideration for that? So that it would continue to provide opportunity for charter captains (idea of opportunity for clients) and also would provide additional flexibility in applying accountability measures at the Council level to constrain harvest to the ACL.
- Because hurricanes effect harvest, will that be taken into account to affect harvest? Difficult to do in real-time; commission could discuss the possibility of trying to take extreme weather into account.
- Question re: hard quota shares – showed four different reference periods; no background to know what is best? Explained the rationale to try to provide a fair shake to all states within the management unit; trying to capture the different characteristics of the fishery, given the pulse nature and the dependence on environmental conditions; discussed the use of numbers vs. weight.

Cobia Draft Fishery Management Plan

Atlantic States Marine Fisheries Commission
September 20, 2017
North Carolina

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Name	Company/Organization	City, State
Michael A. Shutak	Carteret County News-Times	Morehead City, NC
Chris Batsavage	NCDMF	
Joseph W. Smith	NMFS retired	MHC, NC
Michelle Hoppes	PUBLIC	" "
Jacob Krause	NCSU	MHC, NC
Anna Beckwith	SAMFC	MHC, NC.

Cobia Draft Fishery Management Plan Public Hearing Summary
Hatteras, North Carolina
September 21, 2017
22 Attendees

Meeting Staff: Dr. Michelle Duval (NC DMF), Anna Beckwith (SAFMC)
Attendees: Justin Lott, William Gorham, Chris Hickman, Melba Milak, Keith Wilson, Ernie Foster, Rick Carton, Will Smith, Cameron Whitaker, Jerry Shicks, Justin Revere, Aaron, Tommy, Jeff Oden, Rick Scarborough, Steve Hussey, Aaron Kelly, three others.

Recreational Season and Allocation Options:

Mr. Rick Caton indicated that no options were acceptable and we should go back to the old rules of 2 fish at 33".

Mr. Bill Gorham suggested no ASMFC management until ASMFC receives sole management authority. He raised concerns over fish moving in to Maryland and the impacts to the current recreational allocation. He supported Option 2 for the soft allocation and felt Sub-Option a (3-year landings reference period) was the best option for years for allocation for North Carolina. Mr. Gorham also commented on maintaining the current commercial harvest levels but raised concerns over discards after any commercial closure.

Nine additional commenters supported Option 2 (recreational harvest target evaluated over multiple years).

Additional Comments:

A general discussion revolved around estimates of catch and a basic mistrust of the past several years of high estimates. Most attendees believe the weights and numbers of fish are overinflated based on their experience on the water.

Participants indicated that no samplers came to Hatteras docks during the peak fishing of May and June and suggest that the numbers were "manufactured". Several suggested that MRIP is intended for more commonly encountered species and not pulse fisheries like cobia.

Attendees provided their on-the-water observations that cobia populations have increased significantly over the past several years.

There was frustration and anger expressed over the small amount of poundage allocated to the commercial fishery, several questions were asked regarding how the allocation split (92% recreational, 8% commercial) was established by the SAFMC.

Participants questioned why the commercial fishery was closed just prior to the fall king mackerel fishery (where the majority of bycatch occurs), and noted that there are fewer commercial fishermen now than in the past. (It was noted that NMFS is trying to incorporate

state waters/non-federal dealer reported harvest, which makes up a substantial amount of harvest).

Participants questioned why management could not revert back to the previous 33-inch FL and 2 fish/person bag limit because they felt the fishery was not broken and did not need fixing.

Participants questioned why the Florida east coast sub-zone quota could not be added to the Atlantic migratory group cobia ACL; it was explained that even if the Florida sub-quota could be added back to the existing Atlantic migratory group quota there would still have been an overage (additional research efforts to further define the stock boundary were described).

Participants noted that the fishery changes every year; sometimes the fish show up early, sometimes they do not show up until very late in the season. Some years there are a lot of small fish, and other years there are more big fish.

There were many questions regarding how Option 2 might work and how seasons and vessel limits would be set for each state; it was explained that each state would have to develop its seasonal measures to be submitted to ASMFC for review/approval. It was explained that the 36-inch FL minimum size limit, 1 fish/person bag and 6 fish maximum vessel limit would be the limits within which each state could establish its season. It was noted the evaluation timeframe would allow for changing conditions in the fishery.

Attendees asked if a state's season could be kept open if the fish did not show up when expected, or weather prohibited harvest. It was explained that this would require real-time monitoring, which is difficult under existing recreational data collection programs. Alternatives such as logbooks, catch cards and reporting apps were discussed.

Participants asked what proportion of harvest was attributed to the charter sector. It was noted a small proportion (information presented to the SAFMC regarding harvest by mode was displayed for participants).

Questions were asked regarding how could the accuracy and precision of the private boat estimates be increased; pilot projects under way by the SAFMC to develop a private angler electronic permit and reporting app were described.

Cobia Draft Fishery Management Plan

Atlantic States Marine Fisheries Commission
September 21, 2017
North Carolina

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Name	Company/Organization	City, State
Justin Latt	NCDMF-HP	
William Gorham	RCF	Right here NC
Chris Sherman		Hatteras, NC.
Debbie Neal	NCWO	Hatteras, NC
Reid Wilson		Hatteras, NC
Ernie Foster	Albatross Fleet	" "
Bert Cetan	Cetan Surf Charters	Hatteras, NC
		Buxton, NC
Will Smith	Hang-On Charters	
Cameron Whitaker	BAK BAR	Hatteras, NC
Jeremy Sikes	Transition Fishing	Hatteras
Justin Severe	Calypso Fishery	Hatteras NC
	Hatteras Fishing Adventure	HATTERAS
	Right Line	Hatteras
Tommy Mann III		Hatteras,
Jeff Coker	Shark Cindy	Hatteras
Rick Scarborough	Speck-Tackler	Buxton, NC
	Pelicans Port	Nags Head, NC
Aaron Kelly	Meat hog fishing	
	Rock Solid Fishing	Kill Devil Hills NC
Mark Beckwith	SAMFC	MHC,
Michelle Duval	NCDMF	

Cobia Draft Fishery Management Plan Public Hearing Summary
Georgia Webinar
September 25, 2017
6 Attendees

Meeting Staff: Michael Schmidtke (ASMFC), Pat Geer (GA CRD), Spud Woodward (GA CRD), Kathy Knowlton (GA CRD),
Meeting Participants: Lee Southard, Nathan Alexander

Issues Related to South Atlantic Fishery Management Council (SAFMC) Framework 4: Recreational Size Limit, Recreational Bag Limit, Recreational Vessel Limit, Commercial Size Limit, and Commercial Possession Limit

All of the above issues were presented in the Draft Fishery Management plan with 2 options: Option 1 of no ASMFC policy on the issue and Option 2 of an ASMFC policy that matches the SAFMC's Framework 4. Comments on all such complementary measures are summarized below.

Lee Southard stated support of Option 2 (complementary management) for both the Commercial Size and Possession Limit options.

Recreational Season and Allocation Options:

Lee Southard stated support of Option 2 with Sub-Options d and f (State-by-state recreational harvest target allocations based on the 5-year/10-year average landings reference period evaluated over a 3-year timeframe)

Nathan Alexander stated support of Option 2 (State-by-state recreational harvest target allocations) Sub-Options b-d (5-year, 10-year, or 5-year/10-year average landings reference period) with some preference for d (5-year/10-year average landings reference period) and Sub-Option e (2-year landings evaluation timeframe). Mr. Alexander stated that 3 years may be too long of a timeframe without re-evaluation to respond to problems in the fishery.

De Minimis Options:

Nathan Alexander stated support of a *de minimis* program but does not have a strong preference for Option 2 versus Option 3. Mr. Alexander did express support for Sub-Option b (allowing *de minimis* states the choice to match an adjacent or nearest non-*de minimis* state).

Additional Comments:

Lee Southard expressed concern with the current stock definition of Atlantic Migratory Group cobia, stating that Georgia fishers have to wait until cobia migrate from Florida to the north

before that fishery can occur, thus they should be considered a single stock across the Florida-Georgia border. He referenced work done in South Carolina that supports this conclusion. He also stated that the cobia fishery in Georgia is primarily executed in federal waters.

Nathan Alexander stated concern with Georgia's lack of a cobia fishery in 2017 due to a federal closure before the season effectively began. Mr. Alexander stated that due to migratory patterns and weather conditions, the cobia fishery in Georgia is only able to operate over a short period of time, resulting in relatively low annual landings compared to other states further north. However, due to the Georgia fishery's occurrence in federal rather than state waters, Georgia's fishery closes during federal closures while states with much larger fisheries primarily in state waters are able to continue harvesting cobia.

Cobia Draft Fishery Management Plan Public Hearing Summary
Charleston, South Carolina
September 26, 2017
15 Attendees

Meeting Staff: Michael Schmidtke (ASMFC), Robert Boyles (SC DNR), Dr. Malcolm Rhodes (ASMFC)
Meeting Participants: Richard Moore, John Carmichael (SAFMC), Tanya Darden (SC DNR), Mike Collins (SAFMC), Mel Bell (SC DNR), Mark Brown (SAFMC), Jim Reed, Andrew Petersen (Bluefin Data), Amy Dukes (SC DNR), Rusty Hudson, Michelle Duvall (NC DMF), Doug Haymans (GA CRD)

Issues Related to South Atlantic Fishery Management Council (SAFMC) Framework 4: Recreational Size Limit, Recreational Bag Limit, Recreational Vessel Limit, Commercial Size Limit, and Commercial Possession Limit

All of the above issues were presented in the Draft Fishery Management plan with 2 options: Option 1 of no ASMFC policy on the issue and Option 2 of an ASMFC policy that matches the SAFMC's Framework 4. Comments on all such complementary measures are summarized below.

Mark Brown expressed support for Option 2 for both commercial options.

Amy Dukes expressed concern for the lack of a vessel permit option for the commercial fishery. With the current wording of "2 fish per license holder", this would require multiple trip tickets to be written for cobia caught on the same trip.

Recreational Season and Allocation Options:

Mark Brown expressed support for Option 2 with Sub-Options c and e (state-by-state recreational harvest targets based on landings from a 10-year average reference period evaluated over a 2-year time period).

Richard Moore expressed support for Option 2 with Sub-Option c and e.

Jim Reed expressed support for Option 2 with Sub-Options c and e. Mr. Reed also expressed concern with the use of data from the Marine Recreational Information Program as the sole method for tracking recreational harvest.

De Minimis Options:

No specific comments were made in reference to *de minimis* options.

Additional Comments:

Mark Brown expressed concern with potential delay or disruption of implementation by states whose fisheries may be reduced by this Management Plan. Present Commissioners explained the interstate cooperation and accountability inherent to a Commission plan that, if the FMP is approved, would motivate all states to implement measures in a timely manner.

Cobia Draft Fishery Management Plan

Atlantic States Marine Fisheries Commission
September 26, 2017
South Carolina

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Name	Company/Organization	City, State
Malcolm Rhodes	ASMFC	Charleston, SC
Richard Moore		Charleston, SC
John Carmichael	SAFMC	Charleston SC
Tanya Darden	SCDNR	Charleston SC
Mike Collins	SAFMC	C'ston SC
Mac Bell	SCDNR	
Mark Brown	SAFMC SC	Mt Pleasant SC
Dirk Reed	~~SAFE~~ REC/INDUSTRY	Mt Pleasant
Andrew Petterson	Bluefin Data	Baton Rouge, LA
Amy Dukes	SCDNR	Chas. SC
Kyle Gunderson		
Michelle Duvall	NC DMF	
Michael Schmidtke	ASMFC	Arlington, VA

Atlantic States Marine Fisheries Commission

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MEMORANDUM

October 10, 2017

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

From: **Black Drum Technical Committee**

Subject: **Black Drum TC Review of Maryland Proposal**

In September, 2017, the Black Drum Technical Committee (TC) met via conference call to review a proposal from the state of Maryland that would reopen Maryland's commercial fishery for black drum in Chesapeake Bay. After discussion outlined in the attached Call Summary, the TC finds that reopening of this historic fishery would not likely lead to overfishing of the stock. **Therefore, the TC recommends that the Board considers approval Maryland's request to reopen their commercial black drum fishery in Chesapeake Bay.** To improve data used to assess stock status, the TC recommends Maryland conduct biological monitoring of black drum caught by Maryland's commercial fishery in Chesapeake Bay.

Enc: Black Drum TC Sept 29, 2017, Call Summary

M17-103

Atlantic States Marine Fisheries Commission

Black Drum Technical Committee

Call Summary

September 29, 2017
9:30 -11:00 a.m.

Technical Committee: Harry Rickabaugh (Chair) (MD), Jordy Zimmerman (DE), Ryan Jiorle (VA), Chris Stewart (NC), Chris McDonough (SC), Ryan Harrell (GA)

ASMFC Staff: Mike Schmidtke, Jeff Kipp

1) **Welcome & Introductions**

2) **Review of MD Proposal**

- Harry Rickabaugh presented Maryland's proposal to re-open their commercial fishery in Chesapeake Bay. This fishery was historically executed until the late 1990s, when the state of Maryland closed the fishery to conduct a tag and release program that collected life history, migration, and recreational harvest data. After the program was completed, the fishery was not reopened, as it was not considered a high-priority fishery. While the closure was in effect, in 2013, the Atlantic States Marine Fisheries Commission approved the interstate FMP for Black Drum, which required states to maintain current management measures, continuing Maryland's commercial closure in the Chesapeake Bay.

- Maryland is proposing to reopen the Chesapeake Bay commercial black drum fishery with a ten fish per vessel per day harvest limit and a 28 inch minimum total length size limit, equating to an effective daily trip limit of approximately 500 pounds.

- TC Discussion

    - Jordy Zimmerman confirmed some details of the proposal and asked if this proposal would apply to all gears. Harry replied that the proposal would apply to all gears, but realistically this fishery would be mostly pound nets with some hook and line.

    - Chris McDonough asked what monitoring would be conducted. Harry replied that normal commercial monitoring requirements would apply for black drum.

- Chris McDonough asked about comparability to the Virginia commercial fishery. Ryan Jiorle and Chris M discussed the Virginia fishery, in which there is a small directed commercial fishery executed primarily from the Eastern Shore in which black drum are caught via gill nets, pound nets, or hook and line. In Virginia, any commercial license holder can harvest up to one black drum per day, and with an additional permit, black drum larger than a minimum size limit may be harvested without a possession limit.

- Ryan offered to provide data from Virginia's biological monitoring program as supportive material for Maryland's proposal.

- The group discussed the timeframe of the fishery. Although the fishery would legally be open year-round, due to seasonal movements of black drum, this fishery would typically executed about 4-6 weeks per year. Black drum typically spawn before entering Maryland's portion of Chesapeake Bay, so this fishery likely would not catch spawning females.

- Jordy asked about the number of fishermen that would participate. Harry replied that no specific license would be required, but gill nets would be cost-prohibitive for this fishery (they wouldn't catch many black drum due to maximum size restrictions on Atlantic striped bass caught in gill nets) and the pound net fishery in Maryland is capped with limited entry (and is actually shrinking).

- The group discussed potential levels of dead discards. Harry commented that current monitoring efforts show minimal dead discards in the Maryland pound net fishery. The group discussed the potential for death due to overcrowding, but agreed that this was not likely for this fishery.

- Chris M asked about the level of black drum bycatch during the moratorium in the Bay. Harry replied that the pound net fishery starts in May-June, typically catching Atlantic croaker, menhaden, or other migratory fish, but may see 1-5 black drum in a net.

- The group discussed the current market for black drum and potential for this fishery to reach levels seen before the closure. Several group members agreed that black drum are not heavily valued for market such that pound net fishermen would change their behavior, particularly with a ten fish bag limit. Jordy commented that this fishery would occur near the end of the Delaware fishery, in which 45 cents per pound is a typical price for black drum. Jordy commented that as is, the black drum market can quickly become oversaturated, driving the price per pound down. Adding Maryland harvest may increase this oversaturation, resulting in lowered demand

and shortened effective seasons for this fishery. Harry commented that while the Maryland commercial Chesapeake Bay black drum fishery was operating without restriction, average annual landings were about 11,500 pounds, and the fishermen were typically good about monitoring the market. Due to the difficulty of handling large black drum, commercial fishers typically do not want to handle these fish unless they can sell them for a decent price.

- The group discussed the potential for biological monitoring of this fishery. Harry commented that biological sampling of pound nets is already conducted for other species in Maryland, so adding black drum to the species sampled could be looked into. Jordy suggested that fish could be bought directly from the fishery to more easily identify catch location.

****The Black Drum TC recommends that the Maryland proposal to reopen their commercial black drum fishery in the Chesapeake Bay be approved, as reopening of this historic fishery would not likely lead to overfishing of this stock. The TC further recommends that biological monitoring of black drum caught in this fishery be conducted to collect information such as size, age, etc.****

3) **Other Business/Adjourn**

- Jeff Kipp commented that the next benchmark stock assessment for black drum is scheduled for 2020. Jeff and Mike Schmidtke will review data since the last assessment to summarize progress that has been made on research recommendations. This summary will help inform the TC on whether to recommend, on a later call, keeping the assessment as currently scheduled or delaying until more information is collected.

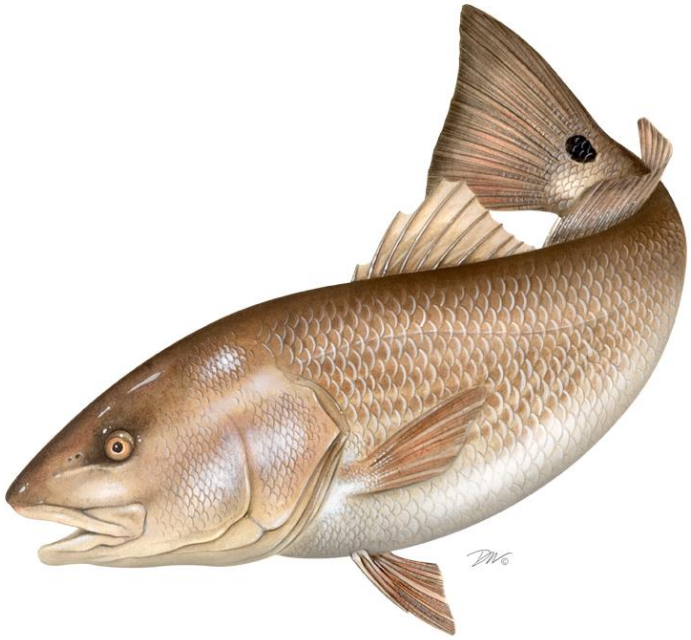
4) **Black Drum FMP Review** (Black Drum PRT)

- The Black Drum PRT reviewed state compliance with the Black Drum FMP for 2016. Their recommendations are found in the 2017 Black Drum FMP Review.

2017 REVIEW OF THE ATLANTIC STATES MARINE FISHERIES COMMISSION FISHERY MANAGEMENT PLAN FOR

RED DRUM (*Sciaenops ocellatus*)

2016 FISHING YEAR



The Red Drum Plan Review Team

Steve Arnott, South Carolina Department of Natural Resources
Lee Paramore, North Carolina Division of Marine Fisheries
Roger Pugliese, South Atlantic Fishery Management Council
Ray Rhodes, College of Charleston
Michael Schmidtke, Atlantic States Marine Fisheries Commission, Chair

Table of Contents

I. Status of the Fishery Management Plan 1
II. Status of the Stocks 3
III. Status of the Fishery 3
IV. Status of Assessment Advice 4
V. Status of Research and Monitoring 5
VI. Status of Management Measures and Issues 6
VII. Implementation of FMP Compliance Requirements for 2015 7
VIII. Recommendations of the Plan Review Team 7
IX. References 11
X. Figures 12
XI. Tables 16

I. Status of the Fishery Management Plan

Date of FMP Approval:	Original FMP – October 1984
Amendments:	Amendment 1 – October 1991 Amendment 2 – June 2002 Addendum 1 – August 2013
Management Areas:	The Atlantic coast distribution of the resource from New Jersey through Florida Northern: New Jersey through North Carolina Southern: South Carolina through the east coast of Florida
Active Boards/Committees:	South Atlantic State/Federal Fisheries Management Board; Red Drum Technical Committee, Stock Assessment Subcommittee, Plan Development Team, Plan Review Team, South Atlantic Species Advisory Panel

The Atlantic States Marine Fisheries Commission (ASMFC) adopted an interstate Fishery Management Plan (FMP) for Red Drum in 1984. The original management unit included the states from Maryland to Florida. In 1988, the Interstate Fisheries Management Program (ISFMP) Policy Board requested that all Atlantic coastal states from Maine to Florida implement the plan's recommended management regulations to prevent development of northern markets for southern fish. The states of New Jersey through Florida are now required to follow the FMP, while Maine through New York (including Pennsylvania) are encouraged to implement consistent provisions to protect the red drum spawning stock.

In 1990, the South Atlantic Fishery Management Council (Council) adopted a FMP for red drum that defined overfishing and optimum yield (OY) consistent with the Magnuson Fishery Conservation and Management Act of 1976. Adoption of this plan prohibited the harvest of red drum in the exclusive economic zone (EEZ), a moratorium that remains in effect today. Recognizing that all harvest would take place in state waters, the Council FMP recommended that states implement measures necessary to achieve the target level of at least 30% escapement.

Consequently, ASMFC initiated Amendment 1 in 1991, which included the goal to attain optimum yield from the fishery over time. Optimum yield was defined as the amount of harvest that could be taken while maintaining the level of spawning stock biomass per recruit (SSBR) at or above 30% of the level which would result if fishing mortality was zero. However, a lack of information on adult stock status resulted in the use of a 30% escapement rate of sub-adult red drum to the off-shore adult spawning stock.

Substantial reductions in fishing mortality were necessary to achieve the escapement rate; however, the lack of data on the status of adult red drum along the Atlantic coast led to the adoption of a phase-in approach with a 10% SSBR goal. In 1991, states implemented or maintained harvest controls necessary to attain the goal.

As hoped, these management measures led to increased escapement rates of juvenile red drum. Escapement estimates for the northern region of New Jersey through North Carolina (18%) and the southern region of South Carolina through Florida (17%) were estimated to be above the 10% phase-in goal, yet still below the ultimate goal of 30% (Vaughan and Carmichael 2000). North Carolina, South Carolina, and Georgia implemented substantive changes to their regulations from 1998-2001 that further restricted harvest.

The Council adopted new definitions of OY and overfishing for red drum in 1998. Optimum yield was redefined as the harvest associated with a 40% static spawning potential ratio (sSPR), overfishing as an sSPR less than 30%, and an overfishing threshold as 10% sSPR. In 1999, the Council recommended that management authority for red drum be transferred to the states through the Commission's Interstate Fishery Management Program (ISFMP) process. This was recommended, in part, due to the inability to accurately determine an overfished status, and therefore stock rebuilding targets and schedules, as required under the revised Sustainable Fisheries Act of 1996. The transfer necessitated the development of an amendment to the interstate FMP in order to include the provisions of the Atlantic Coastal Fisheries Cooperative Management Act.

ASFMC adopted Amendment 2 to the Red Drum FMP in June 2002 (ASMFC 2002), which serves as the current management plan. The goal of Amendment 2 is to achieve and maintain the OY for the Atlantic coast red drum fishery as the amount of harvest that can be taken by U.S. fishermen while maintaining the sSPR at or above 40%. There are four plan objectives:

- Achieve and maintain an escapement rate sufficient to prevent recruitment failure and achieve an sSPR at or above 40%.
- Provide a flexible management system to address incompatibility and inconsistency among state and federal regulations which minimizes regulatory delay while retaining substantial ASMFC, Council, and public input into management decisions; and which can adapt to changes in resource abundance, new scientific information, and changes in fishing patterns among user groups or by area.
- Promote cooperative collection of biological, economic, and sociological data required to effectively monitor and assess the status of the red drum resource and evaluate management efforts.
- Restore the age and size structure of the Atlantic coast red drum population.

The management area extends from New Jersey through the east coast of Florida, and is separated into a northern and southern region at the North Carolina/South Carolina border. The sSPR of 40% is considered a target; an sSPR below 30% (threshold level) results in an overfishing determination for red drum. Amendment 2 required all states within the management unit to implement appropriate recreational bag and size limit combinations needed to attain the target sSPR, and to maintain current, or implement more restrictive, commercial fishery regulations. All states were in compliance by January 1, 2003. See Table 1 for state commercial and recreational regulations in 2015.

Following the approval of Amendment 2 in 2002, the process to transfer management authority to ASMFC began, including an Environmental Assessment and public comment period. The final rule became effective November 5, 2008. It repeals the federal Atlantic Coast Red Drum Fishery Management Plan and transfers management authority of Atlantic red drum in the exclusive economic zone from the South Atlantic Fishery Management Council to the Atlantic States Marine Fisheries Commission.

The Board approved Addendum I to Amendment 2 in August 2013. The Addendum revised the habitat section of Amendment 2 to include current information on red drum spawning habitat and life-stages (egg, larval, juvenile, sub-adult, and adult). It also identified and described the distribution of key habitats and habitats of concern.

II. Status of the Stocks

The 2017 Red Drum Stock Assessment and Peer Review Report indicate overfishing is not occurring for either the northern or southern stock of red drum (ASMFC 2017). The assessment was unable to determine an overfished/not overfished status because population abundance could not be reliably estimated due to limited data for the older fish (ages 4+).

Northern Region (NJ-NC)

Recruitment (age 1 abundance) has varied annually with a large peak occurring in 2012 (Figure 1). The trend in the three-year average sSPR indicates low sSPR early in the time series with increases during 1991 – 1997 and fluctuations thereafter (Figure 2). The average sSPR has been above the overfishing threshold ($F_{30\%}$) since 1994, and at or above the target ($F_{40\%}$) since 1996, except during one year (2002). Fishing pressure and mortality appear to be stabilized near the target fishing mortality. The average sSPR is also likely above the target benchmark.

Southern Region (SC-FL)

Recruitment (age 1 abundance) has fluctuated without apparent trend since 1991 (Figure 1). A high level of uncertainty exists around the three-year average sSPR estimates for the southern region. While the 3-year average sSPR estimate in 2013 was above both the target ($F_{40\%}$) and the overfishing threshold ($F_{30\%}$), indicating that overfishing is not occurring, the high level of uncertainty around this estimate indicates that this conclusion should be considered with extreme caution (Figure 2).

III. Status of the Fishery

Total red drum landings from New Jersey through the east coast of Florida in 2016 are estimated at 2.18 million pounds (Tables 2 and 3, Figure 3). This is roughly 624,000 pounds more than was landed in 2015. 2016 total landings also are above the previous ten-year (2007-2016) average of 1.96 million pounds. The commercial and recreational fisheries harvested 4% and 96% of the total, respectively. The southern region includes South Carolina through Florida's east coast, while the northern region includes New Jersey through North Carolina. In 2016, 80% of the total landings came from the southern region where the fishery is exclusively recreational, and 20% from the northern region (Figure 4).

Coastwide commercial landings were low this year, but show no long-term temporal trends. In the last 50 years, landings have ranged from approximately 54,000 pounds (in 1997) to 440,000 pounds (in 1980, Figure 3). In 2016, red drum were commercially landed only in Maryland, Virginia, and North Carolina (Table 2). Coastwide commercial harvest decreased from 80,946 pounds in 2015 to 78,784 pounds in 2016, with 98% harvested by North Carolina. Historically, North Carolina and Florida shared the majority of commercial harvest, but commercial harvest has been prohibited in Florida under state regulation since January 1988. South Carolina also banned commercial harvest and sale of native caught red drum beginning in 1987, and in 2013 Georgia designated Red Drum Gamefish status, eliminating commercial harvest and sale.

In North Carolina, a daily commercial trip limit and an annual cap of 250,000 pounds with payback of any overage constrain the commercial harvest. Unique to this state, the red drum fishing year extends from September 1 to August 31. In 2008, the Board approved use of the fishing year to monitor the cap. During the 2009/2010 and the 2013/2014 fishing years, North Carolina had overages of 25,858 pounds and 12,753 pounds, respectively. The commercial harvest for each following fishing year remained well below the adjusted cap allowance, providing sufficient payback.

Recreational harvest of red drum peaked in 1984 at 1.05 million fish (or 2.6 million pounds; Tables 3 and 4). Since 1988, the number has fluctuated without trend between 250,000 and 760,000 fish (800,000 to 2.7 million pounds; Figures 3 and 5). Recreational harvest increased from 426,302 fish (1.5 million pounds) in 2015 to 566,291 fish (2.1 million pounds) in 2016. The 2016 harvest is greater than the 10-year average (2007-2016) for recreational harvest in numbers (527,193) and pounds (1.8 million). Florida anglers landed the largest share of the coastwide recreational harvest in numbers (65%), followed by Georgia (13%), South Carolina (11%), and North Carolina (10%).

Anglers release far more red drum than they keep; the percent of the catch released has been over 80% during the last decade (Figure 5). Recreational releases show an increasing trend over the time series that has plateaued from around the early 2000s to the present. The proportion of releases in 2016 was 82% (versus 84% in 2015), and the overall number of fish released was 3.2 million in 2016 (Figure 5, Table 5). It is estimated that 8% of released fish die as a result of being caught, resulting in an estimated 206,840 dead discarded fish in 2016 (Table 5). Recreational removals from the fishery are thus estimated to be 773,131 fish in 2016 (Figure 6).

IV. Status of Assessment Advice

Current stock status information comes from the 2017 stock assessment (ASMFC 2017) completed by the ASMFC Red Drum Stock Assessment Subcommittee (SAS) and Technical Committee (TC), peer reviewed by an independent panel of experts through ASMFC's desk review process, and approved by the South Atlantic State-Federal Fisheries Management Board for use in management decisions. Previous interstate management decisions were based on the last coastwide assessment, SEDAR 18 (SAFMC 2009), and prior to 2009, decisions were based on regional assessments conducted by Vaughan and Helser (1990), Vaughan (1992, 1993,

1996), Vaughan and Carmichael (2000). Several states have also conducted state-specific assessments (e.g., Murphy and Munyandorero 2009; Takade and Paramore 2007). South Carolina is currently performing a state-specific stock assessment of red drum.

The 2017 stock assessment uses a statistical catch at age (SCA) model with age-specific data for red drum ages 1 through 7+. This model is similar to that used in the 2009 assessment, with data updated through 2013. Data from 1989-2013 were included from the following sources: commercial and recreational harvest and discard data, fishery-dependent and -independent biological sampling data, tagging data, and fishery-independent survey abundance data.

The Peer Review Panel considered the use of an SCA model appropriate given the types of data available for red drum. For the northern region, the Review Panel agreed that the model was informative of age 1 – 3 abundance and exploitation rates, but not for older age groups. The model was also found to be informative of annual trends in sSPR and the 2011 – 2013 average sSPR. For the southern region, the Review Panel agreed that estimates of age 7+ fish seemed to be more consistent with the population biology, leading to a large fraction of biomass being unavailable to exploitation. For both regions, most of the sSPR is contained within the larger, fully mature, age 7+ fish, thus even a small increase in fishing mortality on older red drum (due to harvest or other factors) could quickly lead to a decrease in sSPR and overfishing.

V. Status of Research and Monitoring

No monitoring or research programs are annually required of the states except for the submission of a compliance report. The following fishery-dependent (other than catch and effort data) and fishery-independent monitoring programs were reported in the 2017 reports.

<u>Fishery Dependent Monitoring</u>

- Delaware DFW -- Commercial monitoring through mandatory logbook reports.
- Maryland DNR – Commercial pound nets sampled bi-weekly in the Chesapeake Bay from late spring through summer (2016 n=0). Only three of the 24 years of sampling exceeded 20 fish, and no red drum were encountered in ten of the survey years. Licensed charter boat captain logbooks are monitored for red drum captures (2016: 55 caught, 19 harvested).
- PRFC -- Red drum are harvested incidentally in the commercial pound net and haul seine fisheries. The mandatory commercial harvest daily reporting system, which collects harvest and discards/releases, reported zero red drum released in 2016.
- Virginia MRC –Volunteer anglers have participated since 1995 in the Virginia Game Fish Tagging Program (2016: 1,801 fish tagged, 96 reported recaptures). Carcasses collected through the Marine Sportfish Collection Project since 2007 (2016 n=2).
- North Carolina DMF – Commercial cap monitored through trip ticket program; commercially-landed red drum sampled through biological monitoring program since 1982 (2016: 365 fish measured, primarily gill net).
- South Carolina DNR –State finfish survey conducted in January and February (2016 n=155 caught and 47 harvested, mean catch rate: 1.69 red drum/targeted angler hour). Charter

Vessel Trip Reporting (2016 caught: 46,604; release rate: 94.1%). SC Marine Game Fish Tagging Program studies movement patterns, growth rates, and release-mortality rates (in 2016 fish tagged: 2,766; recaptured: 238). Tournament and freezer fish programs (2016 n=17).

- Georgia CRD – Age, length, and sex data collected through the Marine Sportfish Carcass Recovery Project (2016 n=352 red drum).
- Florida FWC –8,087 trip interviews in 2016 collected data on total-catch rates and sizes (through MRIP).
- NMFS – Length measurements and recreational catch, harvest, release, and effort data are collected via the Marine Recreational Information Program.

Fishery Independent Monitoring

- New Jersey DFW – Five annual nearshore trawl surveys conducted since 1988, in January/February, April, June, August, and October. Length and weight data, and catch per unit effort (CPUE) in number of fish per tow and biomass per tow recorded for all species. Only two red drum were caught in entire time series (single tow, 2013).
- North Carolina DMF - Seine survey since 1991 produces age-0 abundance index (2016 n=712; CPUE of 5.93, increase from 2015 CPUE of 4.88). Gill net survey in Pamlico Sound since 2001 characterizes size and age distribution, produces abundance index, improves bycatch estimates, and studies habitat usage (2016 CPUE of 3.29, above long-term average). Longline survey since 2007 produces adult index of abundance and tags fish (2016 n=246; CPUE below long-term average at 3.41 fish per set).
- South Carolina DNR – Estuarine trammel net survey for subadults (2016 CPUE below 10-year average). Electrofishing survey in low salinity estuarine areas for juveniles/subadults (2016 CPUE below 10-year average). Inshore bottom longline survey for biological data and adult abundance index (808 tagged, 128 sampled for age in 2016). Genetic sub-sampling and tagging conducted during these three surveys.
- Georgia CRD – Estuarine trammel net survey for subadult biological data and abundance index (2016, both areas n=89). Estuarine gill net survey for young-of-year (YOY) biological data and abundance index (2016 both areas n = 508). Bottom longline survey for adult biological data and abundance index (2016 n = 181).
- Florida FWC-FWRI – Two seine surveys in northern Indian River Lagoon (IRL) and lower St. Johns River (SJR) for YOY (< 40 mm SL) abundance indices (2016 CPUE less than 2015). Haul seine survey in these areas and southern IRL for subadult index (2016 CPUE slightly higher than 2015). Age and length data collected during surveys.

VI. Status of Management Measures and Issues

Fishery Management Plan

Amendment 2 was fully implemented by January 1, 2003, providing the management requirements for 2010. Requirements include: recreational regulations designed to achieve at least 40% sSPR, a maximum size limit of 27 inches or less, and current or more stringent commercial regulations. States are also required to have in place law enforcement capabilities adequate to successfully implement their red drum regulations. In August 2013, the Board

approved Addendum I to Amendment 2 of the Red Drum FMP. The Addendum revises the habitat section of Amendment 2 to include the most current information on red drum spawning habitat for each life stage (egg, larval, juvenile, sub-adult, and adult). It also identifies the distribution of key habitats and habitats of concern, including potential threats and bottlenecks.

De Minimis Requests

New Jersey and Delaware requested *de minimis* status through the annual reporting process. While Amendment 2 does not include a specific method to determine whether a state qualifies for *de minimis*, the PRT chose to evaluate an individual state's contribution to the fishery by comparing the two-year average of total landings of the state to that of the management unit. New Jersey and Delaware each harvested zero percent of the two-year average total landings. *De minimis* status does not exempt either state from any requirement; it may exempt them from future management measures implemented through addenda to Amendment 2, as determined by the Board.

VII. Implementation of FMP Compliance Requirements for 2016

The PRT finds that all states have implemented the requirements of Amendment 2.

VIII. Recommendations of the Plan Review Team

Management and Regulatory Recommendations

- Consider approval of the *de minimis* requests by New Jersey and Delaware
- Support a continued moratorium of red drum fishing in the exclusive economic zone.

Prioritized Research and Monitoring Recommendations (H) =High, (M) =Medium, (L) =Low

Stock Assessment and Population Dynamics

- Implement surveys (e.g. logbooks, electronic methods, etc.) in each state throughout the management unit to determine the length composition (and age data, if possible) of recreational discards (B2) of red drum. This information has been highlighted as the single largest data gap in previous assessments. (H)
- Further study is needed to determine discard mortality estimates for the Atlantic coast, both for recreational and commercial gears. Additionally, discard estimates should examine the impact of slot-size limit management and explore regulatory discard impacts due to high-grading. Investigate covariates affecting discard mortality (e.g., depth, size, seasonality), and explore methods of determining *in situ* mortality (as opposed to tank studies) and mitigating mortality (e.g. gear types, handling methods, use of descending devises on adults). (H)
- Improve catch/effort estimates and biological sampling from recreational and commercial fisheries for red drum, including increased intercepts of night fisheries for red drum. (H)
- Expand biological sampling based on a statistical analysis to adequately characterize the age/size composition of removals by all statistical strata (gears, states, etc.). (H)
- Each state should develop an on-going red drum tagging program that can be used to estimate both fishing and natural mortality and movements. This should include concurrent evaluations of tag retention, tagging mortality, and angler tag reporting rates. The

importance of each state's tagging data to the assessment should be evaluated, including analysis of historical tagging data to determine if existing and historic recreational data sources (e.g., tagging) can be used to evaluate better B2 selectivities. (H)

< Establish programs to provide on-going estimates of commercial and recreational discard mortality using appropriate statistical methods. Discard estimates should examine the impact of slot-size limit management and explore regulatory discard impacts due to high-grading. (M)

< Evaluate the broader survey needs to identify gaps in current activities and provide for potential expansion and/or standardization between/among current surveys. (M)

Biological

< Explore methods to effectively sample the adult population in estuarine, nearshore, and open ocean waters, such as in the ongoing red drum long line survey, and to determine the size, age and sex composition of the adults. (H)

< Continue genetic analyses (i.e, SC DNR analyses) to evaluate stock structure and mixing and temporal changes in genetic composition of the red drum population and other applications. (H)

< Refine maturity schedules on a geographic basis. Thoroughly examine the influence of size and age on reproductive function. Investigate the possibility of senescence in female red drum. Archive histological specimens across sizes to look for shifts in maturity schedules and make regional comparisons. Standardize histology reading methods of slides across states conducting such studies. (For reference, see SEDAR 44-DW02). (H)

< Determine habitat preferences, environmental conditions, growth rates, and food habits of larval and juvenile red drum throughout the species range along the Atlantic coast. Assess the effects of environmental factors on stock density/yearclass strength. Determine whether natural environmental perturbations affect recruitment and modify relationships with spawning stock size. (H)

< Continue tagging studies to determine stock identity, inshore/offshore migration patterns of all life stages (i.e. basic life history research). Specific effort should be given to developing a large-scale program for tagging adult red drum. (M)

< Fully evaluate the effects and effectiveness of using cultured red drum to facilitate higher catch rates along the Atlantic coast. (M)

< Conduct a tagging study using emerging technologies (i.e., acoustic tagging, satellite tagging, genetic tags) to evaluate stock mixing and identify movement of sub-adult fish transitioning to maturity. (M-L)

< Otolith microchemistry analysis should be considered for exploring links between sub-adult estuarine habitats and adult stock structure. (L)

Social (Unless otherwise indicated, the collection of sociological and/or economic data, also sometimes collectively described as "socioeconomic data," would be based on ACCSP standards.)

< Encourage the NMFS to fund socioeconomic add-on questions to the recreational fisheries survey that are specifically oriented to red drum recreational fishing. (H)

- States with significant fisheries (over 5,000 pounds) should periodically (e.g. every five years) collect socioeconomic data on red drum fisheries through add-ons to the recreational fisheries survey or by other means. (H)
- Using a human dimension analysis perspective, explore Atlantic red drum historical catch-release trends and explanatory factors such as the possible impacts of changes recreational fishing technology and/or angler behavior on red drum catchability and selectivity over time. (H)
- Conduct applied research to evaluate the various projected (forecasted) social impacts on red drum fishery stakeholders of possible regulatory options (e.g. changing minimum sizes, etc.). (M)

Economic

- Perform new analyses, using available secondary data and other information in established models, to estimate the economic impacts (e.g. sales, jobs, income, etc.) of recreational red drum fisheries related activities at the state and regional level including "for-hire sector" (e.g. hiring a fishing guides). (H)
- Where appropriate, encourage individual member states to conduct studies to project and evaluate the estimated comparable net economic values associated with current and possible future regulatory regimes that could impact red drum recreational anglers including those preferring catch and release fishing. (M)
- Using benefit-cost analysis protocols, project the estimated the public sector oriented net economic values over a time (e.g. ten years or more) for various cultured red drum stocking scenarios. (M)
- Encourage the NMFS to periodically conduct special surveys and related data analysis to determine the economic and operational characteristics of the "for-hire sector" targeting red drum especially fishing guide oriented businesses in the South Atlantic states. (M)

Habitat

- Identify spawning areas of red drum in each state from North Carolina to Florida so these areas may be protected from degradation and/or destruction. Explore relationships between spawning activity (e.g. spawning sounds) and environmental parameters (e.g. temperature). (H)
- Identify changes in freshwater inflow on red drum nursery habitats. Quantify the relationship between freshwater inflows and red drum nursery/sub-adult habitats. (H)
- Determine the impacts of dredging and beach re-nourishment on red drum spawning and early life history stages. (M)
- Investigate the concept of estuarine reserves to increase the escapement rate of red drum along the Atlantic coast. (M)
- Identify impacts of water quality, environmental, and ecosystem changes on red drum stock dynamics for potential incorporation into stock assessment models. (M)
- Quantify relationships between red drum production and habitat and implications for future management planning. (L)

- Determine methods for restoring red drum habitat and/or improving existing environmental conditions that adversely affect red drum production. (L)

IX. References

Atlantic States Marine Fisheries Commission (ASMFC). 2002. Amendment 2 to the Interstate Fishery Management Plan for Red Drum. ASMFC, Washington, DC, Fishery Management Report No. 38, 141 p.

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X. Figures

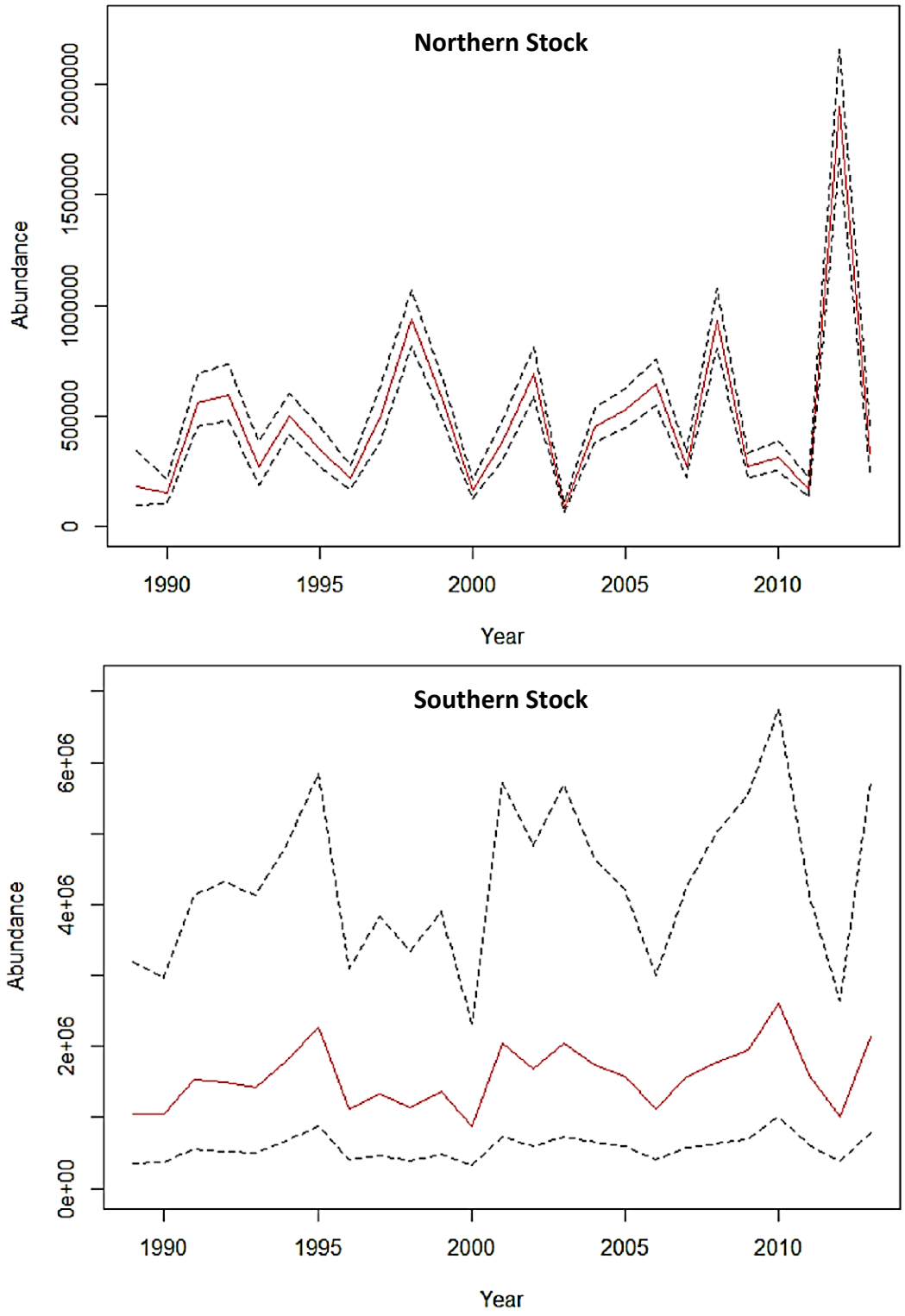

Figure 1. Predicted recruitment (age-1 abundance, red lines) with 95% confidence intervals (dashed black lines) for the northern (top) and southern (bottom) regions (Source: ASMFC 2017).

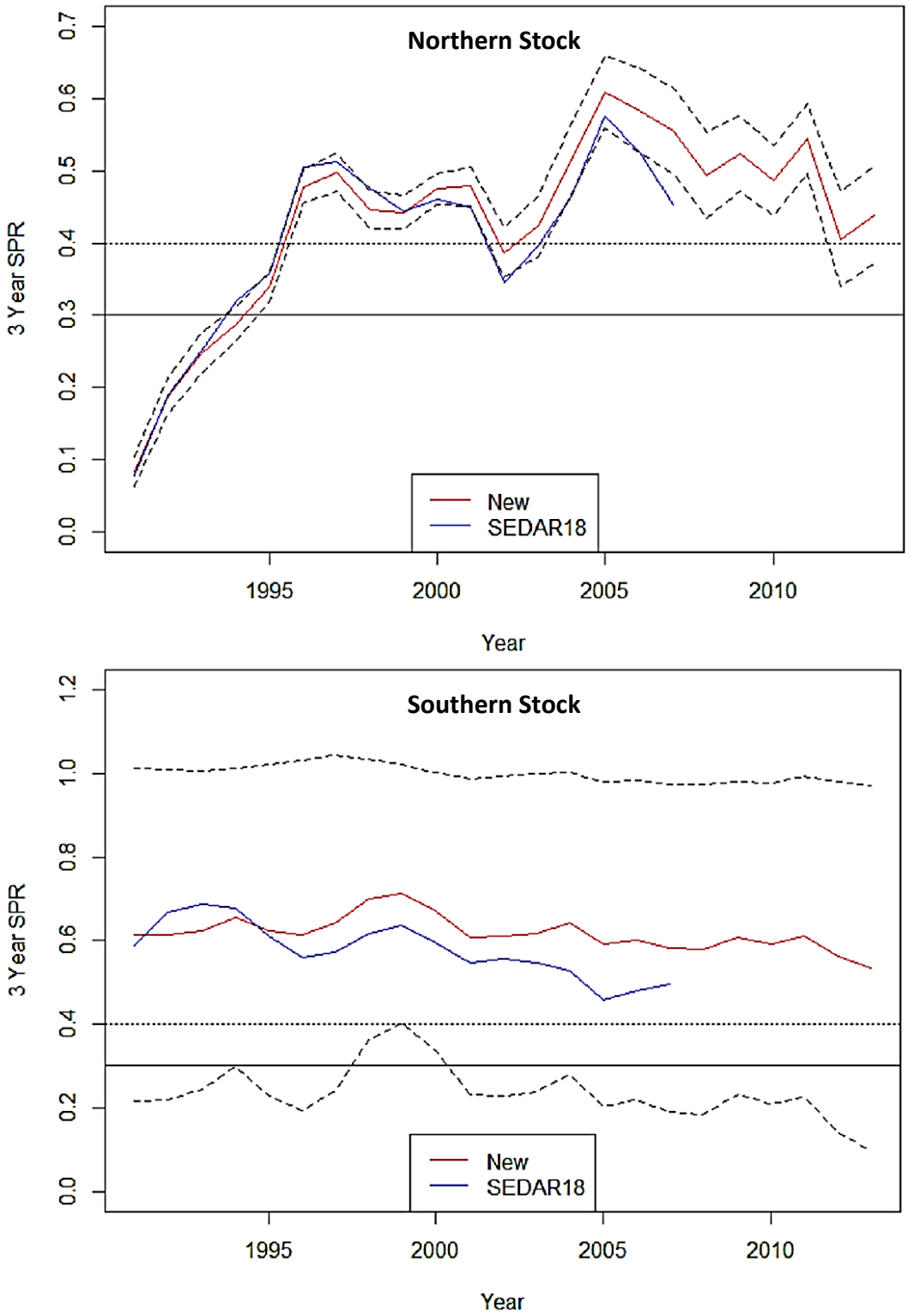

Figure 2. Three year average sSPR (red lines) for the northern (top) and southern (bottom) stocks with 95% confidence intervals (dashed black lines). Point estimates from the previous benchmark assessment (SEDAR18) are included for comparison. The target sSPR (dotted black line) is 40% and the threshold sSPR (solid black line) is 30% (Source: ASMFC, 2017)**.**

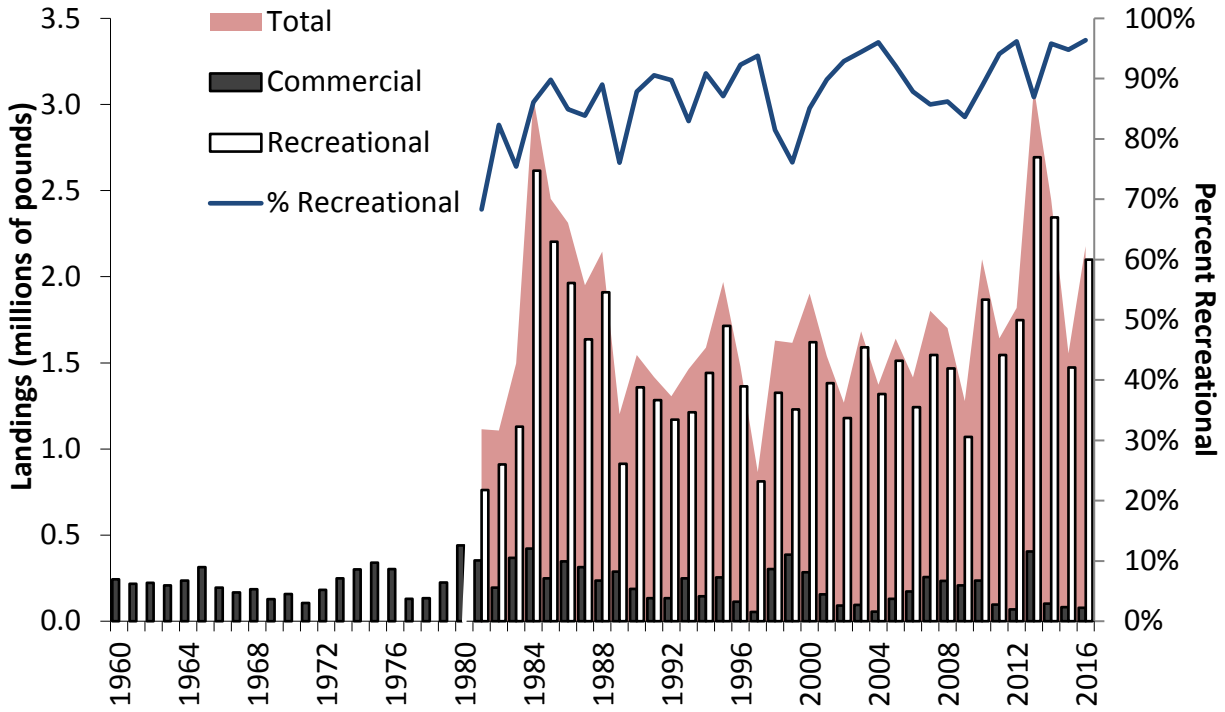

Figure 3. Commercial and recreational landings (pounds) of red drum. Recreational data not available prior to 1981. See Tables 2 and 3 for values and data sources.

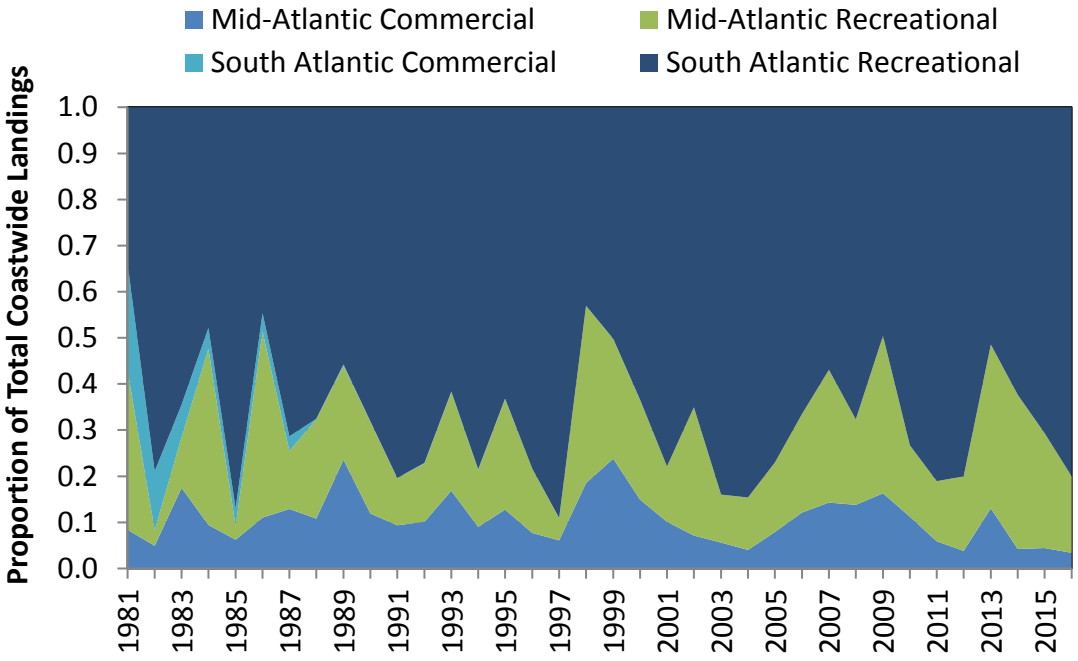

Figure 4. Proportion of regional, sector-specific landings to total coastwide landings (pounds). See Tables 2 and 3 for data sources.

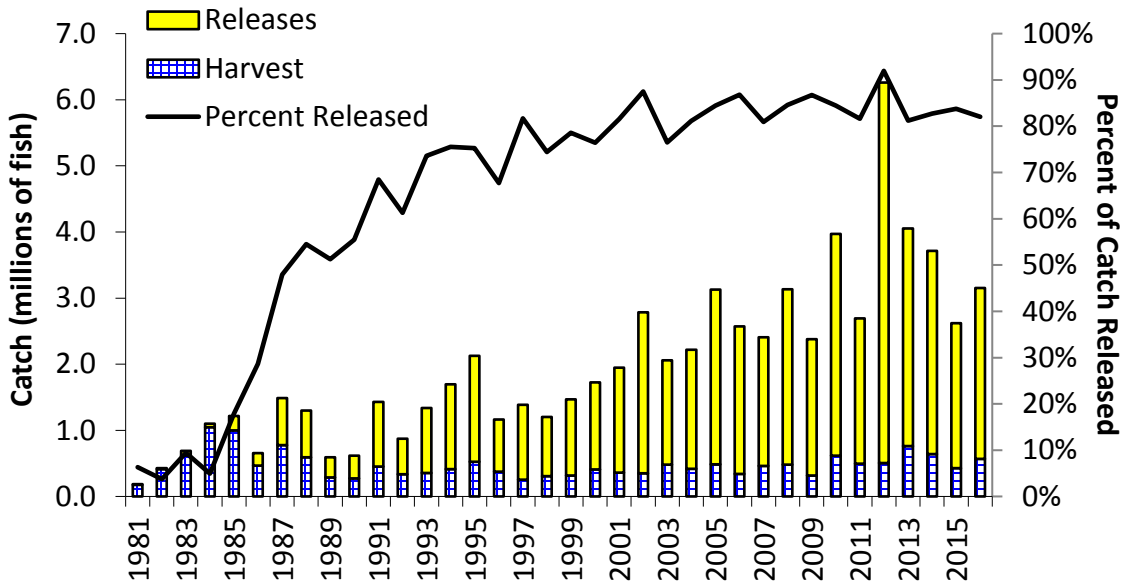

Figure 5. Recreational catch (harvest and alive releases) of red drum (numbers) and the proportion of catch that is released. See Tables 4 and 5 for values and data sources.

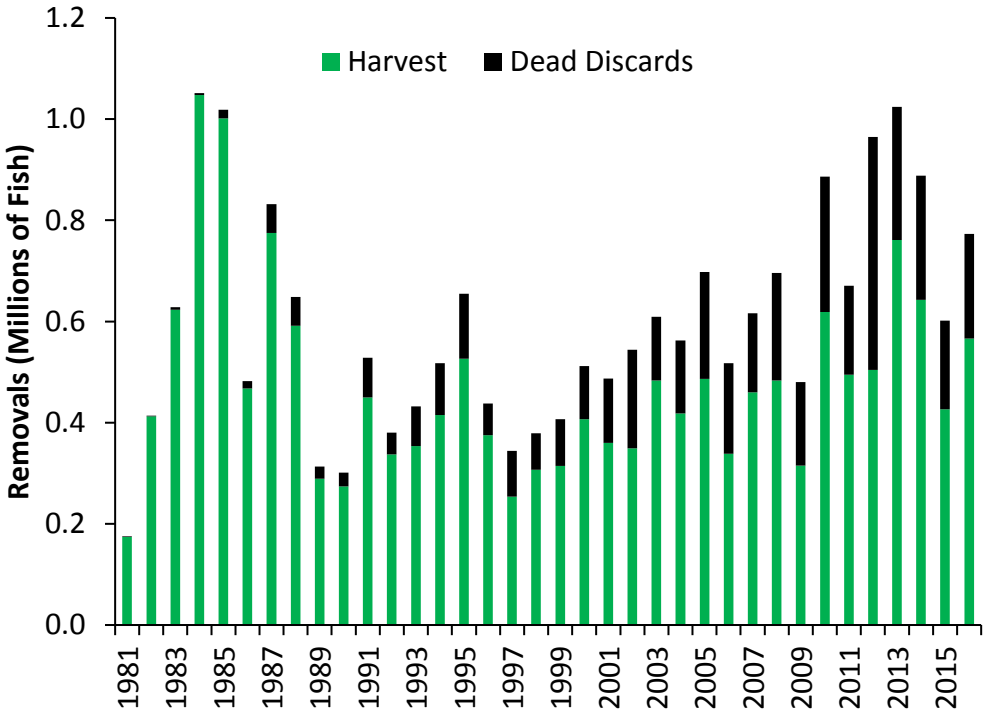

Figure 6. Recreational removals (harvest and dead discards) of red drum (numbers). Dead discards are estimated by applying an 8% discard mortality rate to alive releases. See Tables 4 & 5 for values and data sources.

XI. Tables

Table 1. Red drum regulations for 2016. The states of New Jersey through Florida are required to meet the requirements in the FMP; states north of New Jersey are encouraged to follow the regulations. All size limits are total length.

State	Recreational	Commercial
NJ	18" - 27", 1 fish	18" - 27", 1 fish
DE	20" - 27", 5 fish	20" - 27", 5 fish
MD	18" - 27", 1 fish	18" - 25", 5 fish
PRFC	18" - 25", 5 fish	18" - 25", 5 fish
VA	18" - 26", 3 fish	18" - 25", 5 fish
NC	18" - 27", 1 fish	18" - 27"; 250,000 lb harvest cap with overage payback (150,000 lbs Sept 1- April 30; 100,000 lbs May 1-Aug 31); harvest of red drum allowed with 7 fish daily trip limit; red drum must be less than 50% of catch (lbs); small mesh (<5" stretched mesh) gill nets attendance requirement May 1 - November 30. Fishing year: September 1 – August 31.
SC	15" - 23", 3 fish. Gigging allowed March-November	Gamefish Only
GA	14" - 23", 5 fish	Gamefish Only
FL	18" - 27", Northern Region- 2 fish; Southern Region- 1 fish	Sale of native fish prohibited

Table 2. Commercial landings (pounds) of red drum by state, 1981-2016. (Source: personal communication with ACCSP, Arlington, VA, for years prior to 2016 and State Compliance Reports for 2016, except as noted below.)

Year	NJ	DE	MD	PRFC	VA	NC	SC	GA	FL	Total
1981					200	93,420	808	261	258,374	353,063
1982					1,700	52,561	2,228	251	139,170	195,910
1983			100		41,700	219,871	*	1,126	105,164	367,961
1984					2,600	283,020	3,950	1,961	130,885	422,416
1985					1,100	152,676	3,512	3,541	88,929	249,758
1986			1,000		5,400	249,076	12,429	2,939	77,070	347,914
1987					2,600	249,657	14,689	4,565	42,993	314,504
1988			8,100	2	4,000	220,271	20	3,281	284	235,958
1989			1,000	86	8,200	274,356	165	3,963		287,770
1990			29	86	1,481	183,216		2,763		187,575
1991			7,533	3,808	24,771	96,045	1,475	*		133,632
1992			1,087	196	2,352	128,497		1,759		133,891
1993			55		8,637	238,099		2,533		249,324
1994			859		*	142,169	32	2,141		145,201
1995			6		2,992	248,122		2,578		253,698
1996			215		*	113,338		*		113,553
1997			22	4	*	52,502	*	1,426		53,954
1998	*		336		6,456	294,366	*	672		301,830
1999	*		504	186	10,856	372,942	*	1,115		385,603
2000	*		843	10	11,512	270,953	*	707		284,025
2001	*		727	191	4,905	149,616		*		155,439
2002	*		1,161	285	7,361	81,370		*		90,177
2003	*		631	47	2,716	90,525		*		93,919
2004	*		12		638	54,086		*		54,736
2005	*	33	37	51	527	128,770		*		129,418
2006	*	*	8	2	2,607	169,206		*		171,823
2007			6678	58	6,372	243,658		*		256,766
2008			*	69	4,585	229,809		*		234,463
2009	*		*	157	8,315	200,296		*		208,768
2010			*	22	3,634	231,828		*		235,484
2011				3	4,369	91,980		*		96,352
2012	*		347	81	2,609	66,519				69,556
2013	*	0	3,121	268	28,766	371,949				404,104
2014	*	0	298	3	11,999	90,647				102,947
2015	0	0	*	0	664	80,282				80,946
2016	0	0	*	0	1,807	76,977	0	0	0	78,784

* Notes: PRFC landings from agency reporting program; * indicates confidential landings.

Table 3. Recreational landings (pounds) of red drum by state, 1981-2016. (Source: personal communication with MRIP for years prior to 2016, state compliance reports for 2016)

Year	NJ	DE	MD	VA	NC	SC	GA	FL	Total
1981			4,370	347,939	31,519	50,230	9,442	317,963	761,463
1982					37,511	340,686	52,150	480,676	911,023
1983			3,018	51,299	109,540	222,691	67,298	675,924	1,129,770
1984				1,285	1,160,539	183,282	294,583	976,971	2,616,660
1985					70,677	1,532,316	185,887	414,176	2,203,056
1986			754,161	145,517	31,594	498,586	173,837	360,725	1,964,420
1987				44,332	200,729	913,639	250,795	227,222	1,636,717
1988				9,030	451,974	1,050,049	385,860	12,507	1,909,420
1989			2,348	27,236	214,849	396,771	127,245	146,064	914,513
1990			2,679		302,994	631,819	161,712	258,569	1,357,773
1991			5,635	30,582	108,268	284,290	337,207	516,999	1,282,981
1992				55,324	109,134	411,484	198,751	396,555	1,171,248
1993				45,505	266,459	282,614	328,245	290,930	1,213,753
1994				3,684	192,060	314,632	353,616	578,412	1,442,404
1995				66,270	405,620	417,595	300,337	525,231	1,715,053
1996				1,512	204,556	396,394	164,756	596,483	1,363,701
1997				1,810	39,077	296,155	129,836	345,390	812,268
1998				34,861	591,428	129,619	84,348	487,091	1,327,347
1999				92,794	326,303	103,777	166,630	540,310	1,229,814
2000				95,596	316,029	93,043	228,965	885,447	1,619,080
2001				51,890	132,578	188,198	155,854	853,714	1,382,234
2002		860	15,154	155,212	182,225	103,831	170,572	551,128	1,178,982
2003				57,213	118,808	449,399	234,865	729,446	1,589,731
2004				32415	124,264	312,569	296,777	566,508	1,332,533
2005				7,624	239,694	298,600	177,169	788,993	1,512,080
2006		2,064		21,039	251,735	160,760	143,699	636,742	1,216,039
2007				209,248	305,664	152,190	197,510	674,463	1,539,075
2008				72,510	236,744	254,305	244,594	652,613	1,460,766
2009				148,573	286,702	165,874	125,499	343,359	1,070,007
2010				40,323	281,587	451,144	319,427	776,346	1,868,827
2011					212,245	441,833	229,214	662,811	1,546,103
2012	0	396	26,788	27,422	238,310	368,445	107,368	978,727	1,747,456
2013	0	7,153	6,367	411,236	676,050	236,887	129,279	1,226,481	2,693,453
2014	0	0	0	221,280	598,166	242,371	154,332	1,129,663	2,345,812
2015	0	0	0	29,339	154,496	269,787	97,690	922,065	1,473,377
2016	0	0	0	9,682	230,473	144,859	153,368	1,560,972	2,099,354

Table 4. Recreational landings (numbers) of red drum by state, 1981-2016. (Source: personal communication with MRIP for years prior to 2016, state compliance reports for 2016)

Year	NJ	DE	MD	VA	NC	SC	GA	FL	Total
1981			601	49,630	15,054	27,319	6,323	75,244	174,171
1982					16,445	160,760	30,757	204,401	412,363
1983			2,413	32,940	81,528	104,806	56,854	344,513	623,054
1984				1,457	108,787	129,547	258,188	549,381	1,047,360
1985				0	22,077	530,110	183,837	265,185	1,001,209
1986			12,804	28,139	17,501	193,188	102,279	113,440	467,351
1987				2,186	61,100	522,420	138,062	51,225	774,993
1988				4,311	142,626	287,916	147,042	9,542	591,437
1989			1,014	12,007	62,359	127,492	51,557	34,748	289,177
1990			1,279	0	33,149	118,666	76,304	44,280	273,678
1991			2,745	17,119	38,658	125,833	162,802	102,727	449,884
1992				13,275	23,593	112,534	83,861	104,265	337,528
1993				14,005	49,493	119,189	105,710	65,140	353,537
1994				1,378	28,953	129,515	134,214	120,938	414,998
1995				3,665	88,593	202,430	134,915	96,927	526,530
1996				572	36,746	130,649	60,251	146,823	375,041
1997				1,920	8,749	129,022	39,041	75,235	253,967
1998				13,070	114,638	46,509	24,929	107,982	307,128
1999				12,425	64,739	44,069	67,283	126,180	314,696
2000				22,603	61,618	37,217	94,144	191,070	406,652
2001				6,967	23,142	61,420	90,376	177,633	359,538
2002		275	5,521	49,795	42,541	41,190	90,993	119,010	349,325
2003				13,607	25,481	162,484	122,259	159,331	483,162
2004				5,005	30,017	107,803	138,893	136,728	418,446
2005				2,766	51,807	130,655	105,655	195,550	486,433
2006		468	6,362	12,665	55,714	48,703	68,813	145,860	338,585
2007				46,405	66,789	72,261	113,237	161,427	460,119
2008				20,847	50,809	119,471	133,107	159,246	483,480
2009				38,670	57,543	70,326	68,857	79,635	315,031
2010				11,076	64,024	172,708	194,826	175,828	618,462
2011	995				45,143	161,503	106,962	180,001	494,604
2012		296	17,869	28,149	52,948	121,068	45,766	238,191	504,287
2013		1,686	2,134	124,156	164,217	97,387	73,826	297,527	760,933
2014	0	0	0	53,545	116,921	103,892	91,764	275,536	641,658
2015	0	0	2	7,792	36,704	106,620	48,172	227,014	426,304
2016	0	0	0	3,510	56,166	62,816	74,702	369,097	566,291

Table 5. Recreational alive releases and dead discards (numbers) of red drum by state, 1981-2016. Dead discards are estimated based on an 8% release mortality rate. (Source: Source: personal communication with MRIP for years prior to 2016, state compliance reports for 2016)

Year	NJ	DE	MD	VA	NC	SC	GA	FL	Total	Dead Discards
1981					2,230	417		9,042	11,689	935
1982						2,496	3,377	10,172	16,045	1,284
1983					1,866	6,751	1,417	54,723	64,757	5,181
1984					2,931	0	4,232	47,196	54,359	4,349
1985				1,115		16,688	6,315	193,399	217,517	17,401
1986				7,595		24,018	56,045	100,095	187,753	15,020
1987					18,499	82,595	234,676	377,959	713,729	57,098
1988				3,958	24,874	269,176	177,319	233,988	709,315	56,745
1989			2,918	7,038	7,566	42,824	71,162	172,303	303,811	24,305
1990			0	934	12,452	102,611	156,263	68,667	340,927	27,274
1991			4,432	14,461	121,178	99,968	92,803	645,773	978,615	78,289
1992	301			15,383	60,230	46,269	128,066	284,893	535,142	42,811
1993				50,434	182,301	146,324	140,386	465,656	985,101	78,808
1994				10,684	107,662	324,706	146,039	691,261	1,280,352	102,428
1995				33,560	164,520	362,844	356,618	683,706	1,601,248	128,100
1996				2,424	35,752	176,517	71,983	500,374	787,050	62,964
1997		2,571		109,754	259,570	175,772	22,736	560,559	1,130,962	90,477
1998			2,768	93,660	199,701	84,274	33,882	481,009	895,294	71,624
1999			2,148	232,893	247,146	87,776	18,586	565,981	1,154,530	92,362
2000			1,458	196,541	203,967	94,050	129,190	693,152	1,318,358	105,469
2001				30,365	238,552	221,045	249,892	850,044	1,589,898	127,192
2002		1,388	18,412	801,239	640,857	142,931	168,902	663,879	2,437,608	195,009
2003		731	2,935	43,379	75,561	430,052	272,897	748,765	1,574,320	125,946
2004				33,777	181,252	438,173	141,972	1,006,814	1,801,988	144,159
2005				28,351	378,541	493,595	334,521	1,405,967	2,640,975	211,278
2006		875	12,357	185,859	510,264	539,936	136,306	847,269	2,232,866	178,629
2007				110,566	416,352	436,797	225,985	758,684	1,948,384	155,871
2008		75	217	236,787	658,887	552,217	313,743	889,550	2,651,476	212,118
2009			14,754	178,396	429,776	751,123	167,704	521,659	2,063,412	165,073
2010			2,182	28,580	635,876	786,452	483,650	1,414,115	3,350,855	268,068
2011				61,330	207,697	664,291	213,781	1,051,143	2,198,242	175,859
2012	0	5,873	280,000	2,503,237	1,533,006	543,618	90,237	799,428	5,755,399	460,432
2013	0	407	2,207	220,305	654,030	673,377	198,722	1,541,541	3,290,589	263,247
2014	0	41	273	114,305	383,421	635,152	285,770	1,648,723	3,067,685	245,415
2015	0	0	774	25,835	334,510	571,433	168,338	1,094,215	2,195,105	175,608
2016	0	0	15,414	49,819	825,046	337,852	160,031	1,197,342	2,585,504	206,840

2017 REVIEW OF THE
ATLANTIC STATES MARINE FISHERIES COMMISSION
FISHERY MANAGEMENT PLAN FOR

SPOTTED SEATROUT
(Cynoscion nebulosus)

2016 FISHING YEAR

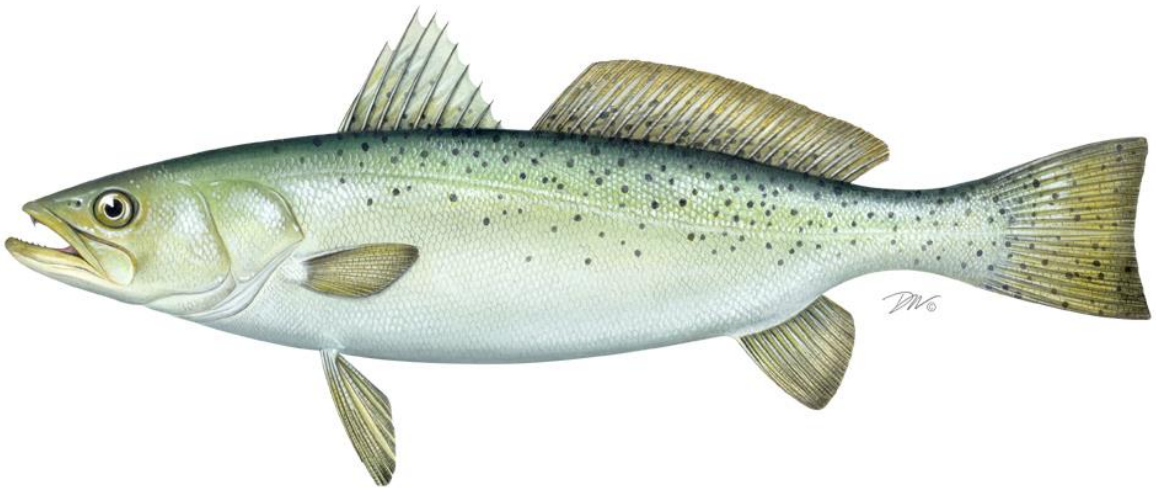

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Table of Contents

I. Status of the Fishery Management Plan 1
II. Status of the Stock 2
III. Status of the Fishery 3
IV. Status of Assessment Advice 4
V. Status of Research and Monitoring 5
VI. Status of Management Measures and Issues 7
VII. Implementation of FMP Compliance Requirements for 2015 7
VIII. Recommendations of FMP Review Team 7
IX. References 9
X. Figures 10
XI. Tables 11

I. Status of the Fishery Management Plan

Date of FMP Approval:	Original FMP – October 1984
Amendments:	Amendment 1 – November 1991 Omnibus Amendment to Spanish Mackerel, Spot, and Spotted Seatrout -- August 2011
Management Area:	The Atlantic coast distribution of the resource from Maryland through the east coast of Florida
Active Boards/Committees:	South Atlantic State/Federal Fisheries Management Board; Spotted Seatrout Plan Review Team; South Atlantic Species Advisory Panel

The Atlantic States Marine Fisheries Commission (ASMFC) adopted the Fishery Management Plan (FMP) for spotted seatrout in 1984. The ISFMP Policy Board approved Amendment 1 to the FMP in November 1991. In August 2011, the South Atlantic State/Federal Management Board approved the Omnibus Amendment to the Spanish Mackerel, Spot, and Spotted Seatrout FMPs, bringing the Spotted Seatrout FMP under the authority of the Atlantic Coastal Fisheries Cooperative Management Act (Act, 1993) and the ASMFC Interstate Fishery Management Plan Charter (1995). The states of Maryland through Florida have a declared interest in the species.

The goal of the management plan is "to perpetuate the spotted seatrout resource in fishable abundance throughout its range and generate the greatest possible economic and social benefits from its harvest and utilization over time." Plan objectives include:

1. Attain optimum yield over time.
2. Maintain a spawning potential ratio of at least 20% to minimize the possibility of recruitment failure.
3. Promote conservation of the stocks to reduce inter-annual variation in availability and to increase yield per recruit.
4. Promote collection of economic, social, and biological data required to effectively monitor and assess management efforts relative to the overall goal.
5. Promote research that improves understanding of the biology and fisheries of spotted seatrout.
6. Promote harmonious use of the resource among various components of the fishery through coordination of management efforts among the various political entities having jurisdiction over the spotted seatrout resource.
7. Promote determination and adoption of standards of environmental quality and provide habitat protection necessary for the maximum natural protection of spotted seatrout.

The Omnibus Amendment added the following objectives to support compliance under the Act:

1. Manage the spotted seatrout fishery by restricting catch to mature individuals.
2. Manage the spotted seatrout stock to maintain sufficiently high spawning stock biomass.
3. Develop research priorities that will further refine the spotted seatrout management program to maximize the biological, social, and economic benefits derived from the population.

Management measures include a minimum size limit of 12 inches in total length (TL), with comparable mesh size regulations in directed fisheries, and data collection for stock assessments and monitoring of the fishery. All states with a declared interest in spotted seatrout (MD-FL) have implemented, at a minimum, the recommended minimum size limit. In addition, each state has either initiated spotted seatrout data collection programs or modified other programs to collect improved catch and effort data. Table 1 provides the states' recreational and commercial regulations for spotted seatrout through 2015.

II. Status of the Stock

A coastwide stock assessment of spotted seatrout has not been conducted, given the largely non-migratory nature of the species and the lack of data on migration where it does occur. Instead, state-specific age-structured analyses of local stocks have been performed by several states. These stock assessments provide estimates of static spawning potential ratio (SPR), a measure of the effect of fishing pressure on the relative spawning power of the female stock. The FMP recommends a goalof 20% SPR. South Carolina and Georgia have adopted this goal while North Carolina and Florida have established a 30% and 35% SPR goal, respectively.

Spotted seatrout stock assessments have been conducted in individual states. Assessments in North Carolina, which included data from 1981-1997, and Georgia, which included data from 1986-1995, both indicated that female SPR was below the 20% goal in the terminal year (Zhao and Burns 2001, Zhao *et al.* 2001). A more recent assessment was performed in Georgia in 2002; however, it remains unpublished due to questionable results attributed to data deficiencies and changing methodologies.

North Carolina completed a peer reviewed stock assessment, which included data from 1991-2008 and included all spotted seatrout caught in North Carolina and Virginia (Jensen 2009). The assessment indicated that SPR has been below 20% in recent years. Jensen (2009) recommended management measures be implemented to account for recent increases of recreational fishing and discard mortality and to maintain a sufficiently large spotted seatrout population to buffer against future cold stun events. Based on this assessment, North Carolina approved a state FMP for spotted seatrout in April 2012.

A peer-reviewed stock assessment of spotted seatrout in Virginia and North Carolina waters was completed in 2014, incorporating data from 1991-2013 (NCDMF 2014). Results suggest

that the age structure of this stock expanded during the last decade; however, there was a sharp decline in recruitment after 2010. Similarly, spawning stock biomass (SSB) declined after a peak in 2007. These declines may be attributed to cold stun events. In 2012, SSB exceeded the currently defined threshold, suggesting the stock is not overfished. Additionally, fishing mortality is below the threshold, suggesting the stock is not experiencing overfishing.

The South Carolina Department of Natural Resources packaged several state-specific assessments into a report in 2001, though these were not peer reviewed. The initial assessment covering 1986-1992 indicated that female SPR was just above the 20% goal in the terminal year (Zhao and Wenner 2001), leading to a minimum size limit increase and a creel limit reduction. A more recent assessment was conducted for the period 1981-2004 (de Silva, Draft 2005). Two modeling approaches were used, and both models indicated that the current SSB is below the requirement to maintain 20% SPR.

Florida conducted separate stock assessments for the northern and southern populations on their Atlantic coast. Average transitional SPR estimates during 2007-2009 were 0.67 in the northern region and 0.45 in the southern region (Murphy et al. 2011), leading to some relaxation in Florida's management of the resource (Table 1). A new statewide assessment is currently underway; completion is scheduled for December. This assessment includes stock synthesis models constructed for each of Florida's four management regions (NW, SW, NE, and SE).

III. Status of the Fishery

Spotted seatrout is regularly caught both commercially and recreationally from Maryland through the east coast of Florida. In South Carolina, spotted seatrout has been declared a gamefish and can only be taken by recreational means. Landings from states north of Maryland are minimal and/or inconsistent from year to year. All catch estimates in this section include those in the management area only (MD-FL). Total recreational landings have surpassed total commercial landings every year since recreational landings were first recorded in 1981 (Figure 1). In 2009, recreational landings totaled more than five times commercial landings. A coastwide (VA, NC, and SC) winter mortality event in 2000/2001 likely contributed to the sudden decline in commercial and recreational landings in 2001 and 2002.

Commercial Fishery

Commercial harvest statistics were obtained from the Atlantic Coastal Cooperative Statistics Program (ACCSP) for years prior to 2016 and from state compliance reports for 2016. Atlantic coast commercial landings of spotted seatrout (1960-2015) have ranged from 156,000 pounds to 1.38 million pounds (Figure 1). Historically, commercial landings primarily came from North Carolina and Florida, with Virginia, South Carolina, and Georgia accounting for a small portion of the total. From 1960 to 1976, annual commercial landings of spotted seatrout averaged 1.07 million pounds, followed by a decline due to increased regulation and possible declines in abundance. Significant changes to regulations include the 1987 designation of spotted seatrout as a gamefish in South Carolina, and the 1995 prohibition on the use of entangling nets in

Florida's coastal waters. From 2007 to 2016, commercial landings averaged approximately 339 thousand pounds. North of Florida, variability in annual harvest was typical and paralleled the climatic conditions of the preceding winter and spring. In 2016, commercial landings totaled 295,419 pounds, a 68% increase from 2015. North Carolina, Florida, and Virginia accounted for 86%, 8%, and 6% of the total commercial landings, respectively.

Recreational Fishery

Recreational harvest statistics were obtained from the Marine Recreational Information Program (MRIP) for years prior to 2016 and from state compliance reports for 2016. Over the last 33 years, recreational catch of spotted seatrout (kept and released) has shown an upward trend, increasing from 1.1 million fish in 1981 to a peak of 8.8 million fish in 2012. In 2016, recreational catch totaled 7.3 million fish, a 29% increase from 2015 (Figure 2). Recreational harvest has remained relatively stable throughout the time series with an average of 1.3 million fish. Recreational harvest in 2016 was 1.1 million fish (a 115% increase from 2015), with North Carolina (34%) and Florida (30%) responsible for the largest shares. Due in part to recreational size and creel limits and closed seasons, as well as the encouragement of catch and release practices, the percentage of caught fish being released has increased throughout the time series, with the most recent 10-year average (2007-2016) at 82%. In 2016, the release percentage declined from the time series maximum (91%) to 85%. Rod and reel is the primary recreational gear, but some spotted seatrout are taken by recreational nets and by gigging, where these methods are permitted. Most recreational fishing is conducted from private boats and the majority of the catch is taken from nearshore waters.

IV. Status of Assessment Advice

A coastwide stock assessment of spotted seatrout has not been conducted and the Plan Review Team (PRT) does not recommend that one be completed due to the life history of the fish and the availability of data. Several states have performed age-structured analyses on local stocks, and recent stock assessments provide divergent trends on the status of the species. The 2005 stock assessment in South Carolina indicated an increasing population trend but a status level that is still below target spawning stock biomass levels (de Silva 2005). The 2014 North Carolina and Virginia stock assessment showed declines in recruitment since 2010. The PRT supports the continuation of state-specific assessments, yet recognizes the difficulty most states face to attain sufficient data of assessment quality and personnel who can perform the necessary modeling exercises.

The lack of biological and fisheries data for effective assessment and management of the resource was recognized in the 1984 FMP and continues to be a hindrance. Some states are increasing their collection of biological and fisheries data, which will provide insight on stock status over time.

V. Status of Research and Monitoring

In addition to commercial and recreational fishery-dependent data collected and/or compiled through the NMFS Fisheries Statistics Division, some states have implemented fishery-independent or additional fishery-dependent monitoring programs.

Maryland

MD DNR samples commercial pound nets weekly in the Potomac River and Chesapeake Bay from May through September (2016 n=1, 625 mm TL).

A few juvenile spotted seatrout are encountered in the coastal bays seine survey and the Chesapeake Bay blue crab trawl survey, indicating seatrout utilize these areas as nursery habitat (2016 seine n=4, trawl n=35).

Virginia

The VMRC Biological Sampling Program collects commercial and recreational fishery-dependent biological data. In 2016, the VMRC collected 863 commercial lengths and weights, determined the sex of 264 individuals, and aged 226 individuals. In 2016, the VMRC collected lengths and sex of 49 recreationally caught seatrout.

North Carolina

Commercial fish houses are sampled monthly for fishery-dependent length, weight, and age data. Very little variation is seen throughout sampling years. In 2016, gill nets were responsible for 90% of the catch, with beach seines accounting for 4% and gigs for 4%.

A fishery-independent Estuarine Trawl Survey is conducted to measure annual juvenile recruitment for many species. The Catch per Unit Effort (CPUE) index for the current 10-year time series has not shown significant trends in CPUE over that time span, although CPUE has declined in every year since the most recent peak in 2012. The CPUE of age-0 spotted seatrout for 2016 was 0.72±0.22 fish per tow, the lowest recorded during the previous 10-year period.

A fishery-independent gill net survey is conducted to measure age composition and develop indices of age 1+ abundance for many species. Seatrout age 1+ abundance index varies very little annually, averaging 0.56±0.06 seatrout per set, but low CPUEs in 2011 and 2015 correspond to known cold stun mortality events. The CPUE of adult spotted seatrout for 2016 was 0.58±0.09 fish per set.

The NCDMF Age Lab ages otoliths collected from several fishery-dependent and independent sources. A total of 457 spotted seatrout were aged by otoliths in 2016 with a maximum age of 5 and a modal age of 1.

South Carolina
The State Finfish Survey collects fishery-dependent catch, effort, and length data from private boat anglers in January and February. In 2016, 23% of 106 interviewed parties primarily targeted spotted seatrout (2016 n=141, mean catch rate of 5.9 fish per targeted fishing hour).

A mandatory trip reporting system for the charter boat fishery has been in place since 1993. In 2016, 810 (6%) interviewed trips targeted seatrout (2016 mean catch rate of 1.18 fish per targeted fishing hour).

The Freezer Drop-Off and the Fishing Tournament programs gather biological information like size, sex, maturity, and age. In 2016, these programs gathered biological information from 81 spotted seatrout.

South Carolina conducts two fishery-independent data collection programs. The Trammel Net Survey covers 7 monthly and 2 quarterly strata. Spotted seatrout is consistently one of the top three most abundance species encountered. The 2016 statewide mean CPUE was similar to 2015 and above the long-term average. The Electrofishing survey covers 5 monthly strata, and catches relatively low numbers of mostly YOY seatrout. Statewide catch rate by the electrofishing survey have been low since 2010, and were the second lowest on record in 2016.

Georgia
A Marine Sportfish Carcass Recovery Program collects recreational fishery-dependent size and age data (2016 n=2,343 spotted seatrout, average length of 384 mm, 264-622 mm range).

The Marine Sportfish Population Health Study trammel net survey samples monthly from September to November since 2003 in the Wassaw and Altamaha Sounds to collect fishery-independent age- and sex-specific estimates of relative abundance (2016: Wassaw average length 353 mm; Altamaha 343 mm). Gillnet sampling also occurs through this study, often encountering seatrout (2016: Wassaw average length 312 mm; Altamaha 329 mm).

Florida
Fishery-dependent sampling includes commercial trip-ticket information and biostatistical sampling of commercial and recreational catch. A voluntary angler logbook program was implemented in 2002 to record lengths of spotted seatrout released alive by anglers. In 2011, this program changed to a ‘postcard’ program, enlisting anglers encountered during MRIP angler intercept interviews.

A juvenile finfish monitoring program is conducted in the northern Indian River Lagoon (since 1990) and in the estuarine St. Johns, St. Marys, and Nassau Rivers (since 2001). Florida also conducts a 183-m haul seine survey in the Indian River (since 1997) and northeast Florida (since 2001). YOY abundance in 2016 was the highest observed since the time series maximum in 2009 (2016: 465 YOY lengths measured). Recent relative adult abundance (>200 mm SL) has declined in the northeast region since 2009 but has shown recent increases in the southeast

region with 2016 abundance being the highest since 2011 and the fourth-highest in the time series (2016: 460 adult lengths measured).

VI. Status of Management Measures and Issues

Changes to State Regulations
In 2016, Georgia implemented a minimum size increase from 13 inches TL to 14 inches TL.

De Minimis Requests
A state qualifies for *de minimis* status if its previous three-year average combined commercial and recreational catch is less than 1% of the previous three-year average coastwide combined commercial and recreational catch. Those states that qualify for *de minimis* are not required to implement any monitoring requirements, as none are included in the plan.

The states of New Jersey and Delaware request continuation of *de minimis* status. The PRT notes these states meet the requirements of *de minimis*.

VII. Implementation of FMP Compliance Requirements for 2016

The PRT notes that all states have met the compliance requirements.

VIII. Recommendations of Plan Review Team

Management and Regulatory Recommendations

- Consider approval of *de minimis* requests by New Jersey and Delaware.
- Maintain observer coverage in states that have a commercial fishery for spotted seatrout.

Prioritized Research Recommendations

High Priority

- Conduct state-specific stock assessments to determine stock status relative to the plan objective of maintaining a spawning potential of at least 20%.
- Collect data on the size or age of spotted seatrout released alive by anglers and the size or age of commercial discards.
- Research release mortality and how this changes with factors such as season, habitat (e.g., depth, temperature, salinity), fish life history (e.g., size, age) and fishing methods (e.g., gear types).
- Monitor the size, age and reproductive condition of recreationally harvested fish (e.g. freezer drop off and tournament monitoring programs).
- Research into links between spawning activity, environmental conditions, trophic interactions and recruitment.
- Continue work to examine the stock structure of spotted seatrout on a regional basis (e.g., genetics, use of advanced tagging techniques).
- Research effects of winter severity on the population.
- Utilize telemetry technology to better understand life history characteristics.

- Conduct additional research on the significance of age-specific fecundity changes (i.e., environmental impacts on spawning output of population)
- Develop state-specific juvenile abundance indices.

Medium Priority

- Identify essential habitat requirements.
- Initiate collection of social and economic aspects of the spotted seatrout fishery.

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X. Figures

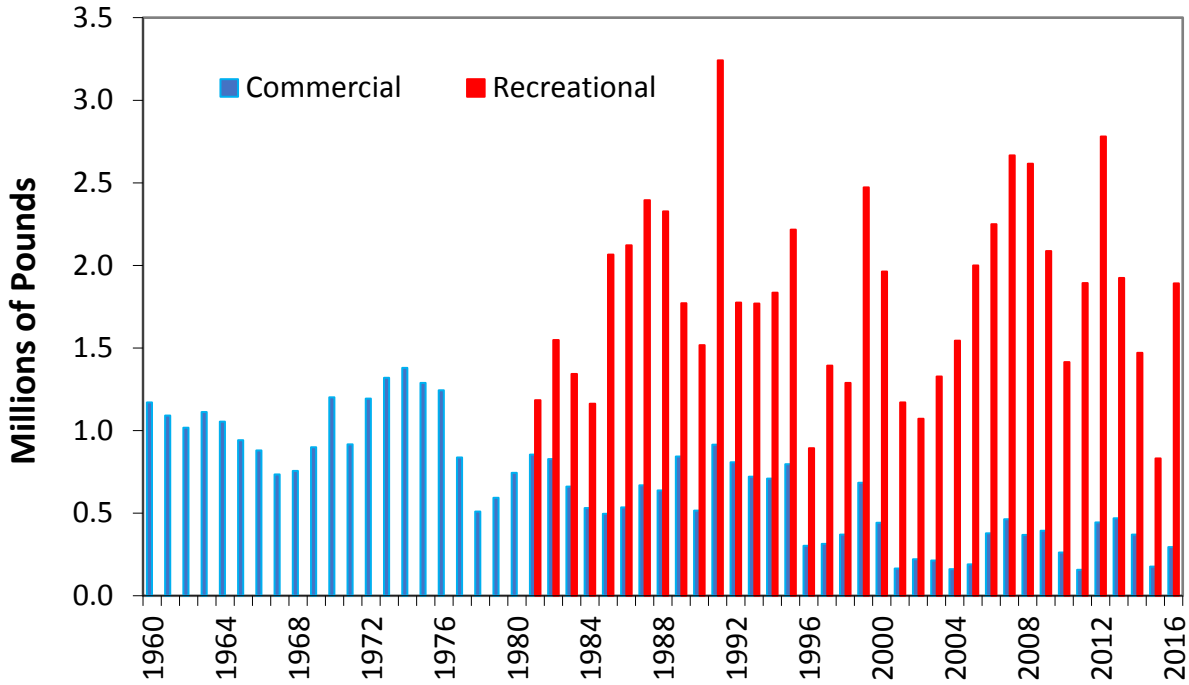

Figure 1. Commercial landings (1960-2016) and recreational landings (1981-2016), in pounds, from Maryland to Florida (See Tables 2 and 4 for values and sources). Recreational data not available prior to 1981.

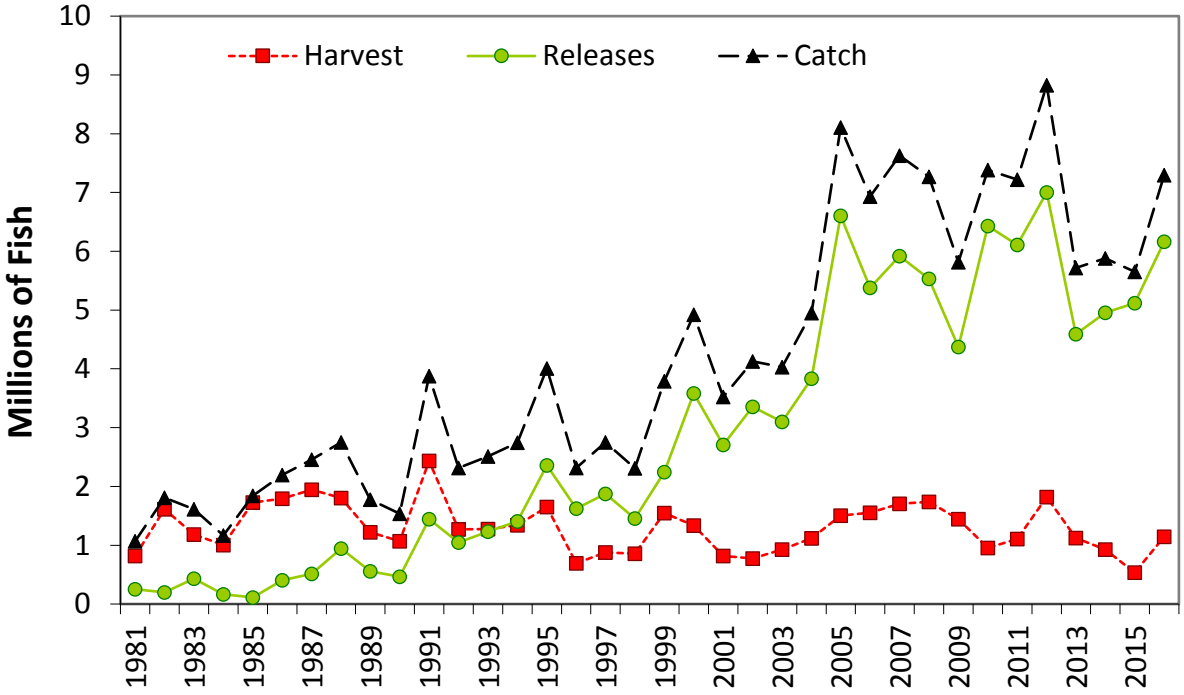

Figure 2. Recreational catch, harvest, and releases (numbers), 1981-2016, from Maryland to Florida (See Tables 3 and 5 for values and sources).

XI. Tables

Table 1. Summary of state regulations for spotted seatrout in 2016.

State	Recreational	Commercial
New Jersey	13" TL; 1 fish	Gill net, trawl, and pound net: 13"; 100 lb/vessel/day possession and bycatch limit; seasonal closures; monthly reporting. Trawl and gill net mesh size restrictions. Hook & line fishermen must follow rec limits.
Delaware	12" TL	12" TL
Maryland	14" TL; 4 fish	14" TL. 150 lb limit per day or trip (whichever is longer). Trawl and gill net mesh size restrictions.
PRFC	14" TL; 10 fish	14" TL
Virginia	14-24" TL; 1 fish >24" allowed; 5 fish; closed season March-July.	14" TL; pound nets/seines allowed 5% by weight less than 14". Hook & line fishermen must follow rec limits. Quota: 51,104 lbs (Sept-Aug). After 80% reached, 100 lb/vessel/day possession and bycatch limit.
North Carolina	14" TL; 4 fish	14" TL; 75 fish limit. Unlawful to possess or sell Friday 12:00am-Sunday 12:00am.
South Carolina	14" TL; 10 fish. Gig March-Nov.	Gamefish status since 1987; native caught fish may not be sold.
Georgia	14" TL; 15 fish	14" TL; 15 fish. BRD requirement for trawl; gear mesh regulations.
Florida	15-20" TL slot; 1 fish >20" allowed; northeast 6 fish; northwest 5 fish; south 4 fish; hook & line/cast net only.	15-24" TL; Season varies by region; 75 fish limit or 150 fish limit with two or more licensed fishermen on board; hook & line/cast net only.

Note: A commercial fishing license is required to possess spotted seatrout for sale in all states with a fishery.

Table 2. Commercial landings (pounds) of spotted seatrout by state, 1981-2016 (Source: ACCSP for years prior to 2016 and State Compliance Reports for 2016). Starred boxes represent confidential data.

Year	MD	VA	NC	SC	GA	FL	Total
1981		4,000	113,304	268	629	736,026	854,227
1982		3,400	83,847	1,944	4,994	732,278	826,463
1983		4,400	165,360	4,479	5,795	481,535	661,569
1984		3,000	152,934	2,374	4,348	367,541	530,197
1985		8,302	109,048	1,770	7,149	369,756	496,025
1986		18,500	191,514	12,214	8,691	304,523	535,442
1987		13,300	315,380	11,941	10,739	317,367	668,727
1988		15,500	296,538	486	9,110	315,989	637,623
1989		18,500	451,909	33	10,577	362,082	843,101
1990		21,435	250,634	945	5,942	236,466	515,422
1991	98	21,200	660,886	18	7,391	225,573	915,166
1992	364	10,395	526,271	17	11,310	259,095	807,452
1993	24	38,033	449,886		8,550	224,072	720,565
1994	30	44,636	412,358		5,112	247,651	709,787
1995	*	28,722	574,296	7	8,482	184,121	795,628
1996	14,961	4,476	226,580		7,501	48,254	301,772
1997	15,688	*	232,497		7,897	57,316	313,398
1998	*	21,774	307,671		*	41,556	371,001
1999	36,365	38,513	546,675		*	61,802	683,355
2000	*	19,918	376,594		*	45,392	441,904
2001	24,754	3,773	105,714		*	30,234	164,475
2002	*	*	175,555		*	44,655	220,210
2003	*	5,310	181,462		*	27,168	213,940
2004	342	*	130,961		*	29,605	160,908
2005	2,410	21,448	129,601		*	36,762	190,221
2006	*	28,529	312,620		*	36,687	377,836
2007	*	40,719	374,722		*	46,838	462,279
2008	290	43,512	304,430		*	20,887	369,119
2009	*	26,350	320,247		*	46,297	392,894
2010	*	20,870	200,822		*	39,374	261,066
2011	640	17,315	75,239		*	63,592	156,787
2012	*	116,767	265,016			61,676	443,460
2013	*	42,086	367,610		*	58,288	467,984
2014	*	90,051	242,245		*	37,710	370,006
2015	*	7,942	128,752			39,226	175,920
2016	66	18,283	253,965	*	0	23,105	295,419

Table 3. Recreational harvest (numbers of fish) of spotted seatrout by state, 1981-2015 (Source: MRIP for years prior to 2016 and State Compliance Reports for 2016).

Year	MD	VA	NC	SC	GA	FL	Total
1981			30,037	20,934	189,080	576,847	816,898
1982			112,023	849,634	226,758	426,378	1,614,793
1983			91,956	121,940	325,655	645,120	1,184,671
1984			90,262	95,281	114,403	700,876	1,000,822
1985			263,878	347,851	251,764	866,162	1,729,655
1986	7,507	82,671	270,867	477,136	401,490	550,591	1,790,262
1987	29,295	17,415	320,977	392,329	439,782	744,330	1,944,128
1988	20,769	288,705	420,115	355,547	389,276	331,709	1,806,121
1989	151,986	66,033	181,149	174,011	448,767	198,617	1,220,563
1990	20,416	67,939	251,088	113,160	368,787	249,824	1,071,214
1991	17,995	69,032	316,895	438,502	1,204,116	385,817	2,432,357
1992	3,235	30,091	333,990	200,030	338,175	363,238	1,268,759
1993	7,038	103,131	206,523	222,144	463,702	274,118	1,276,656
1994	33,511	115,025	457,636	139,551	337,965	255,216	1,338,904
1995	19,198	90,838	325,927	223,751	607,095	381,884	1,648,693
1996	35,765	46,098	151,380	137,530	171,676	148,571	691,020
1997	19,951	92,725	256,719	111,576	167,287	228,096	876,354
1998	13,620	34,623	294,501	125,038	197,293	189,621	854,696
1999	2,112	138,492	410,321	101,260	655,407	241,096	1,548,688
2000	1,634	90,135	250,450	219,740	486,673	288,443	1,337,075
2001		13,447	182,124	63,452	309,487	250,987	819,497
2002		16,303	197,484	84,777	271,357	206,310	776,231
2003	2,091	102,484	106,415	123,027	425,993	169,587	929,597
2004	0	68,409	284,902	188,798	340,625	234,235	1,116,969
2005	1,954	22,062	586,561	271,810	242,281	379,546	1,504,214
2006	4,860	43,530	565,042	230,326	378,587	331,145	1,553,490
2007	0	159,244	531,614	160,601	576,633	277,858	1,705,950
2008		103,880	654,435	155,022	641,948	181,744	1,737,029
2009	7,933	22,635	608,790	124,078	506,551	171,666	1,441,653
2010	3,146	17,417	195,065	101,053	384,077	251,455	952,213
2011	3,058	247,736	215,922	66,207	289,950	286,501	1,109,374
2012	6,032	125,627	500,522	234,921	526,604	427,469	1,821,175
2013	0	55,151	369,265	126,351	237,551	335,547	1,123,865
2014	4,755	46,524	234,045	77,669	256,068	308,133	927,194
2015	4,870	9,043	87,396	106,216	162,772	164,248	534,545
2016	2,813	66,559	388,544	90,768	252,561	345,514	1,146,759

Table 4. Recreational harvest (pounds of fish) of spotted seatrout by state, 1981-2015 (Source: MRIP for years prior to 2016 and State Compliance Reports for 2016).

Year	MD	VA	NC	SC	GA	FL	Total
1981			63,037	14,808	138,719	967,921	1,184,485
1982			120,045	588,999	177,846	660,296	1,547,186
1983			96,359	138,442	323,888	784,532	1,343,221
1984			39,862	116,118	141,307	866,077	1,163,364
1985			288,088	509,552	234,705	1,032,343	2,064,688
1986	4,960	64,393	328,440	587,570	440,774	695,168	2,121,305
1987	22,512	38,495	366,443	592,612	491,317	883,708	2,395,087
1988	36,630	460,377	390,835	448,472	536,960	453,064	2,326,338
1989	184,318	112,345	259,726	277,488	608,009	328,337	1,770,223
1990	39,059	121,135	282,873	174,844	423,814	475,045	1,516,770
1991	34,753	121,604	472,396	628,010	1,449,854	534,372	3,240,989
1992	7,802	56,685	508,760	227,211	430,947	543,492	1,774,897
1993	12,801	201,561	307,151	268,055	586,425	392,827	1,768,820
1994	26,763	175,185	679,996	183,344	412,393	357,442	1,835,123
1995	31,464	148,543	478,673	247,986	667,379	642,669	2,216,714
1996		77,270	197,260	171,728	196,487	249,898	892,643
1997	32,963	261,912	311,890	163,771	242,505	380,275	1,393,316
1998	37,189	61,888	444,441	151,718	262,897	329,793	1,287,926
1999		290,694	690,606	146,277	916,860	428,061	2,472,498
2000	2,972	195,544	385,191	267,296	565,904	545,201	1,962,108
2001		26,733	213,439	58,884	369,084	502,254	1,170,394
2002		28,882	274,101	111,954	302,558	353,692	1,071,187
2003	3,495	218,061	145,936	140,277	502,278	316,279	1,326,326
2004	0	138,841	379,779	168,232	383,501	473,294	1,543,647
2005	5,491	55,901	664,012	339,212	271,586	663,908	2,000,110
2006	10,272	107,770	821,982	291,373	445,026	572,273	2,248,696
2007	0	380,281	879,306	277,514	616,213	512,806	2,666,120
2008		239,743	1,005,548	242,942	773,069	353,317	2,614,619
2009	9,006	44,761	954,845	174,894	598,647	305,129	2,087,282
2010	7,254	30,176	407,534	140,321	424,960	404,576	1,414,821
2011	4,664	550,157	403,517	116,979	353,472	464,863	1,893,652
2012	10,257	226,556	817,551	388,105	518,663	819,009	2,780,141
2013		126,291	649,158	228,014	282,362	637,881	1,923,706
2014	10,633	84,838	433,978	111,194	283,282	546,335	1,470,260
2015	10,972	14,661	148,926	161,394	179,911	314,993	830,857
2016	4755	128685	691277	137615	332704	596569	1,891,605

Table 5. Recreational releases (number of fish) of spotted seatrout by state, 1981-2015 (Source: MRIP for years prior to 2016 and State Compliance Reports for 2016).

Year	MD	VA	NC	SC	GA	FL	Total
1981			0	5,522	36,853	209,059	251,434
1982			0	8,007	17,645	171,093	196,745
1983			16,579	32,860	12,038	367,881	429,358
1984			30,173	44,436	16,174	76,346	167,129
1985			16,578	6,409	22,917	66,960	112,864
1986	13,639	28,606	19,792	115,315	189,798	35,646	402,796
1987	0	30,070	136,104	130,253	176,415	41,391	514,233
1988	26,999	148,934	74,818	78,568	182,628	431,665	943,612
1989	52,859	11,977	82,909	54,279	167,025	187,406	556,455
1990	4,874	23,435	84,235	35,223	114,624	203,439	465,830
1991	21,811	40,550	169,921	51,415	369,972	789,779	1,443,448
1992	701	19,855	139,616	97,813	192,261	597,254	1,047,500
1993	0	65,605	149,744	92,101	146,665	780,573	1,234,688
1994	32,466	243,463	207,262	220,941	125,421	574,629	1,404,182
1995	157,530	327,643	277,896	194,996	327,835	1,074,703	2,360,603
1996	51,594	165,169	153,051	107,691	63,585	1,081,893	1,622,983
1997	4,826	168,964	98,377	89,147	61,148	1,449,278	1,871,740
1998	49,460	74,569	73,024	151,935	100,059	1,005,443	1,454,490
1999	7,082	152,120	253,442	92,792	160,801	1,577,378	2,243,615
2000	4,805	264,550	90,070	368,332	547,765	2,310,491	3,586,013
2001		110,308	194,982	38,709	365,140	1,995,635	2,704,774
2002		136,265	385,162	147,962	357,953	2,326,420	3,353,762
2003	0	207,270	131,619	314,642	737,730	1,707,957	3,099,497
2004	10,493	257,996	260,877	277,553	610,325	2,413,742	3,831,650
2005	2,603	192,091	1,058,921	461,021	642,398	4,245,920	6,604,170
2006	24,953	82,935	594,955	543,560	808,986	3,315,836	5,377,901
2007	2,331	362,809	848,682	572,330	1,038,992	3,094,164	5,919,308
2008		366,566	880,560	734,227	720,738	2,830,240	5,532,833
2009	30,381	171,028	1,213,526	398,971	915,301	1,641,702	4,371,480
2010	107,017	550,118	1,684,872	407,228	742,215	2,937,411	6,429,003
2011	7,685	1,214,620	1,916,249	279,969	552,123	2,141,212	6,111,858
2012	55,183	428,540	1,646,512	817,017	1,029,479	3,025,556	7,003,849
2013	8,382	291,091	1,427,410	600,607	321,461	1,939,475	4,592,077
2014	26,438	404,329	960,570	389,338	773,940	2,399,792	4,955,415
2015	73,379	481,859	1,776,280	392,765	398,418	1,997,168	5,120,261
2016	41,885	1,653,352	1,789,836	481,406	552,279	1,628,300	6,161,800

South Atlantic Board

Activity level: Moderate

Committee Overlap Score: Moderate (Tautog TC and SAS, Horseshoe Crab TC, Bluefish TC, Weakfish SAS)

Committee Task List

- Atlantic Croaker TC ≈ February: Provide recommendations on Traffic Light Analysis changes
- Spot PRT ≈ February: Provide recommendations on Traffic Light Analysis changes
- Black Drum TC – Spring: Review 2014 benchmark stock assessment research recommendations and make recommendation for 2019 stock assessment
- Red Drum SAS - Spring: Develop assessment roadmap and update ASC on progress
- Atlantic Croaker TC - July 1: Compliance Reports Due
- Red Drum TC – July 1: Compliance Reports Due
- Atlantic Croaker TC – August 1: Update Traffic Light Analysis
- Spot PRT – August 1: Update Traffic Light Analysis
- Black Drum TC – August 1: Compliance Reports Due
- Spot PRT – November 1: Compliance Reports Due

TC Members:

Atlantic Croaker: Chris Mcdonough (SC, Chair), Kristen Anstead (ASMFC), Dawn Franco (GA), Michael Greco (DE), Ryan Jiorle (VA), Wilson Laney (USFWS), Joseph Munyandorero (FL), Jennifer Pyle (NJ), Harry Rickabaugh (MD), Jason Rock (NC), Michael Schmidtke (ASMFC), Dan Zapf (NC)

Black Drum: Harry Rickabaugh (MD, Chair), Dustin Addis (FL), Brian Neiland (NJ), Ryan Harrell (GA), Ryan Jiorle (VA), Jeff Kipp (ASMFC), Chris Mcdonough (SC), Chris Stewart (NC), Jordan Zimmerman (DE)

Red Drum: Ryan Jiorle (VA, Chair), Steve Arnott (SC), Michael Greco (DE), Chris Kalinowsky (GA), Jeff Kipp (ASMFC), Wilson Laney (USFWS), Genine McClair (MD), Lee Paramore (NC), Roger Pugliese (SAFMC), Jennifer Pyle (NJ), Michael Schmidtke (ASMFC)

Spot (PRT): Dawn Franco (GA), Ryan Jiorle (VA), Adam Kenyon (VA), Chris Mcdonough (SC), Harry Rickabaugh (MD), Michael Schmidtke (ASMFC), Dan Zapf (NC)

SAS Members:

Atlantic Croaker and Spot: Chris Mcdonough (SC, Chair), Kristen Anstead (ASMFC), Mary Fabrizio (VA), Dawn Franco (GA), Jeff Kipp (ASMFC), Laura Lee (NC), Joseph Munyandorero (FL), Harry Rickabaugh (MD), Michael Schmidtke (ASMFC)

Black Drum: Joe Cimino (VA), Ryan Jiorle (VA), Jeff Kipp (ASMFC), Chris Mcdonough (SC), Scott Newlin (DE), Jordan Zimmerman (DE)

Red Drum: Steve Arnott (SC, Chair), Carolyn Belcher (GA), Angela Giuliano (MD), Ryan Jiorle (VA), Jeff Kipp (ASMFC), Lee Paramore (NC), Michael Schmidtke (ASMFC)