Director's Report

ROY COOPER
Governor

MICHAEL S. REGAN
Secretary

STEPHEN W. MURPHEY
Director

Feb. 6, 2019

MEMORANDUM

TO: N.C. Marine Fisheries Commission

FROM: Stephanie McInerny, License and Statistics Section Chief

SUBJECT: Status of Rule Development to Clarify Standard Commercial Fishing License Transfers

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Issue

Concern has been raised about third-party transfers (e.g., Craigslist) of Standard Commercial Fishing Licenses (SCFLs) allowing individuals to get a license without going through the eligibility board. At the November 2018 Marine Fisheries Commission meeting, proposed amendments to the SCFL rule (15A NCAC 03O .0108) were presented that added language to allow transfers of SCFLs or Retired SCFLs under specific circumstances in addition to those defined in statute (G.S. 113-168.2). Concern was raised about several of the proposed amendments to the rule due to potential loopholes in enforcement. Division staff further reviewed the draft language in more depth and are presenting a second version of the rule.

Findings

- The authorizing statute only recognizes five circumstances as a legal basis for completion of a transfer of these licenses. Additionally, the statute delegates to the commission the authority to establish in rule additional circumstances under which a transfer is allowed.
- There were two proposed amendments to the draft rule presented in November to further facilitate transfers that could move forward, as previously presented, to public comment within the rulemaking process. Those were:
    1. Adding additional family members to the immediate family definition to allow grandparents, grandchildren, and legal guardians to be eligible for a SCFL or Retired SCFL transfer since they are recognized in the SCFL eligibility criteria rule (15A NCAC 03O .0404); and
    2. Confirming the presence of a certification statement from the transferee that affirms the information provided to the division is true and accurate, which is already required for any transfer, but not explicitly stated in rule.
- The remaining proposed amendments were potentially ambiguous and may create loopholes with regards to processing license transfers; therefore, those amendments were removed from the draft rule. Potentially ambiguous amendments included:
    1. Adding business to business transfers between businesses owned by the same person;
    2. Adding owner to business and business to owner transfers; and

3. Adding transfer of a SCFL or Retired SCFL from an entity without a vessel **only** if retiring and the licensee provides required documentation for retirement.

Action Needed
No action by the commission is needed at this time. Staff appreciates the commission's feedback on the status of proposed amendments to the rule (see attached).

Overview
The draft rule presented today (attached) only includes the two proposed amendments that are ready to move forward. This version of the rule will be included in the commission's 2019-2020 package of rules for readoption under the Periodic Review and Expiration of Existing Rules that will be voted on by the commission at its May 2019 meeting to begin the rulemaking process.

Further details on the needs of stakeholders would need to be collected before additional amendments to the transfer rule could be undertaken.

15A NCAC 03O .0108 is proposed for readoption with substantive changes as follows:

15A NCAC 03O .0108 LICENSE AND COMMERCIAL FISHING VESSEL REGISTRATION TRANSFERS

(a) Upon transfer of a license or Commercial Fishing Vessel Registration, the transferee becomes the licensee and assumes the privileges of holding the license or Commercial Fishing Vessel Registration.

(b) A transfer application including a certification statement form shall be provided by the Division of Marine Fisheries. A transfer application shall be completed for each transfer including, but not limited to:

(1) the information required as set forth in Paragraph (a) of Rule .0101 of this Section;

(2) a certified statement from the transferee listing any violations involving marine and estuarine resources in the State of North Carolina during the previous three years; and

(3) a certified statement from the transferee that the information and supporting documentation submitted with the transfer application is true and correct, and that the transferee acknowledges that it is unlawful for a person to accept transfer of a license for which they are ineligible.

(c) A properly completed transfer application shall be returned to an office of the Division by mail or in person, except as set forth in Paragraph (e) of this Rule.

(d) A transfer application submitted to the Division without complete and required information shall be deemed incomplete and shall not be considered further until resubmitted with all required information. Incomplete applications shall be returned to the applicant with deficiency in the application so noted.

~~(a)~~(e) ~~Licenses~~ A License to Land Flounder from the Atlantic Ocean ~~may~~ shall only be transferred:

(1) with the transfer of the ownership of a vessel that the licensee owns that individually met the eligibility requirements of ~~15A NCAC 3O .0101 (b) (1) (A) and (b) (1) (B)~~ Sub-Part (b)(1)(A) and (b)(1)(B) of Rule .0101 of this Section to the new owner of ~~that vessel. Transfer of the License to Land Flounder from the Atlantic Ocean transfers all flounder landings from the Atlantic Ocean associated with~~ that vessel; or

(2) by the owner of a vessel to another vessel under the same ownership.

Transfer of a License to Land Flounder from the Atlantic Ocean transfers with it all flounder landings from the Atlantic Ocean associated with that vessel. Any transfer of license under this Paragraph ~~may~~ shall only be processed through the Division of Marine Fisheries Morehead City Headquarters Office and no transfer is effective until approved and processed by the Division.

~~(b)~~(f) Commercial Fishing Vessel Registration ~~Transfer.~~ transfers: When transferring ownership of a vessel bearing a current ~~commercial fishing vessel registration,~~ Commercial Fishing Vessel Registration, the new ~~owner~~ owner;

(1) shall follow the requirements in ~~15A NCAC 03O .0101~~Rule .0101 of this Section and pay a replacement fee ~~of ten dollars ($10.00)~~ as set forth in Rule .0107 of this Section for a replacement ~~commercial fishing vessel registration.~~ Commercial Fishing Vessel Registration; and

(2) ~~The new owner must~~ shall submit a transfer ~~form~~ application ~~provided by the Division~~ with the signatures of the former ~~licensee~~ owner and ~~the signature of~~ the new ~~licensee~~ owner notarized.

~~(c)~~(g) Standard or Retired Standard Commercial Fishing License transfers:

(1) It is unlawful for a person to accept transfer of a Standard or Retired Standard Commercial Fishing License for which they are ineligible.

~~(1)~~(2) A Standard or Retired Standard Commercial Fishing License ~~may~~ shall only be transferred if both the transferor and the transferee have no current suspensions or revocations of any Marine Fisheries license ~~privileges.~~ privileges except, in the event of the death of the transferor.

~~(2)~~(3) At the time of the transfer of a Standard or Retired Standard Commercial Fishing License, the transferor ~~must~~ shall indicate the retainment or transfer of the landings history associated with that Standard or Retired Standard Commercial Fishing License. The transferor may retain a landings history only if the transferor holds an additional Standard or Retired Standard Commercial Fishing License. Transfer of a landings history is all or none.

~~(3)~~(4) To transfer a Standard or Retired Standard Commercial Fishing License, the following information is required:

(A) information on the transferee as set ~~out~~ forth in ~~15A NCAC 03O .0101;~~Rule .0101 of this Section;

(B) notarization of the ~~current license holder's~~ transferor's and the transferee's signatures on ~~a~~ the transfer ~~form provided by the Division;~~application; and

~~(C) when the transferee is a non-resident, a written certified statement from the applicant listing any violations involving marine and estuarine resources during the previous three years;~~

~~(D)~~(C) when the transferor is retiring from commercial fishing, ~~the transferor must submit~~ evidence showing that such retirement has in fact occurred, ~~for example,~~ which may include, but is not limited to, evidence of the transfer of all ~~licensee's~~ the transferor's Standard Commercial Fishing Licenses, sale of all the ~~licensee's~~ transferor's registered vessels, or discontinuation of any active involvement in commercial fishing.

~~Properly completed transfer forms must be returned to Division Offices by mail or in person.~~

~~(4)~~(5) The Standard or Retired Standard Commercial Fishing License ~~which~~ that is being transferred ~~must~~ shall be surrendered to the Division at the time of the transfer application.

~~(5)~~(6) Fees:

(A) ~~Transferee~~ The transferee ~~must~~ shall pay a replacement fee ~~of ten dollars ($10.00).~~as set forth in Rule .0107 of this Section.

(B) ~~Transferee~~ The transferee ~~must~~ shall pay the differences in fees as specified in G.S. ~~113-168.2 (e)~~ 113-168.2(e) or G.S. ~~113-168.3 (b)~~ 113-168.3(b) when the transferee who is a non-resident is being transferred a resident Standard or Retired Standard Commercial Fishing License.

(C) ~~Transferee~~ The transferee ~~must~~ shall pay the differences in fees as specified in G.S. ~~113-168.2 (e)~~ 113-168.2(e) when the license to be transferred is a Retired Standard Commercial Fishing License and the transferee is less than 65 years old.

~~(6)~~(7) Transfer of Standard or Retired Standard Commercial Fishing License for Deceased Licensees:

(A) When the deceased licensee's immediate surviving family member(s) is eligible to hold the ~~deceased=s~~ deceased's Standard Commercial Fishing ~~Licenses~~ License or Retired Standard Commercial Fishing License, the Administrator/Executor must give written notification within six months after the Administrator/Executor qualifies under ~~G. S.~~G.S. 28A to the ~~Morehead City Office of the~~ Division ~~of Marine Fisheries~~ of the request to transfer the ~~deceased=s~~ deceased's license to the estate Administrator/Executor.

(B) A transfer to the Administrator/Executor shall be made according to the provisions of ~~Subparagraphs (c (2) (c) (4)~~Sub-Paragraphs (g)(2) - (g)(4) of this Rule. The Administrator/Executor must provide a copy of the deceased licensee's death certificate, a copy of the certificate of ~~administration~~ administration, and a list of eligible immediate family members to the ~~Morehead City Office of the Division of Marine Fisheries.~~Division.

(C) The Administrator/Executor ~~may~~ shall only transfer a license in the Administrator/Executor name on behalf of the estate to ~~a~~ an eligible surviving family member. The surviving family member transferee ~~may~~ shall only transfer the license to a third party purchaser of the deceased licensee's fishing vessel. Transfers shall be made according to the provisions of ~~Subparagraphs (c) 2 (c) (4)~~ Sub-Paragraphs (g)(2) - (g)(4) of this Rule.

(8) For purposes of effecting transfers under this Paragraph, "immediate family" shall include grandparents, grandchildren, and legal guardians of a person, in addition to those family members defined in 113-168(3a).

~~(d) Transfer forms submitted without complete and required information shall be deemed incomplete and will not be considered further until resubmitted with all required information.~~

~~(e) It is unlawful for a person to accept transfer of a Standard or Retired Standard Commercial Fishing License for which they are ineligible.~~

History Note: *Authority G.S. 113-134; 113-168.1; 113-168.2; 113-168.3; 113-168.6; 113-182; 143B-289.52;*
Eff. January 1, 1991;
Amended Eff. March 1, 1994;
Temporary Amendment Eff. August 1, 1999; July 1, 1999;
Amended Eff. April 1, 2020; August 1, 2000.

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ASMFC

FISHERIES focus

Vision: Sustainably Managing Atlantic Coastal Fisheries

INSIDE THIS ISSUE

ASMFC Presents Roy W. Miller Prestigious Captain David H. Hart Award

The Atlantic States Marine Fisheries Commission presented Roy W. Miller, Delaware's Governor Appointee to the ASMFC and former Director of Delaware's Division of Fish and Wildlife (DE DFW), the Captain David H. Hart Award, its highest annual award, at the Commission's 77th Annual Meeting in New York City. For the past 40 years, Mr. Miller has admirably served the State of Delaware and the Commission.

Captain David H. Hart Award recipient Roy W. Miller with an Atlantic striped bass.

From the outset of his career in 1978 through passage of the Atlantic Striped Bass Conservation Act in 1984, Mr. Miller served on the Striped Bass Science and Statistical Committee (now known as the Striped Bass Technical Committee), working with the Committee to address the precipitous decline of the striped bass population. As part of those discussions, he was instrumental in getting Delaware to join Maryland in implementing a moratorium on the Delaware striped bass fishery. To this day, he considers the recovery of the striped bass population and the return of the Delaware Bay as a productive and important spawning area as two of his proudest Commission moments.

Beginning in 2003, as Section Administrator for DE DFW, Mr. Miller became the state's Administrative Commissioner Proxy. In that position, he served on and chaired numerous management boards, including Shad and River Herring, Weakfish, and the Horseshoe Crab Board. His chairmanship of the Horseshoe Crab Board was during the highly contentious development and implementation of the FMP, which sought to balance the needs of watermen, who wanted to continue to harvest crabs to use as bait, with the desires of environmentalists, who wanted to preserve the crabs so their eggs could feed migrating shorebirds. Mr. Miller skillfully guided the Board through some intense Board meetings, including significant public comment provided at the meetings. In addition to a management program that accommodated the needs of all the stakeholders and the resource, those meetings also resulted in revised comment protocols for public speaking at ASMFC meetings.

Immediately after his retirement in 2009, Mr. Miller was chosen by Governor Jack Markell (D-DE) to serve as his Appointee to the Commission. Notably, Mr. Miller didn't miss a meeting between his retirement and

continued, see ROY MILLER on page 12

Upcoming Meetings

November 27 (9:30 - 11:30 AM)
Atlantic Herring Plan Development Team Webinar, visit http://www.asmfc.org/calendar/11/2018 for more information

November 27 - 30
Atlantic Striped Bass Benchmark Stock Assessment Peer Review, Northeast Fisheries Science Center's 66th Stock Assessment Workshop (SAW/SARC), Woods Hole, MA

December 3 - 7
South Atlantic Fishery Management Council, Hilton Garden Inn/Outer Banks, 5353 N. Virginia Dare Trail, Kitty Hawk, NC

December 4 - 6
New England Fishery Management Council, Hotel Viking, Newport, RI

December 6 (9:30 - 11:30 AM)
American Lobster Technical Committee Webinar, visit http://www.asmfc.org/calendar/12/2018 for more information

December 11 - 13
Mid-Atlantic Fishery Management Council, Westin Annapolis, 100 Westgate Circle, Annapolis, MD

December 13 (9:30 AM - 12:30 PM)
Atlantic Menhaden Stock Assessment Subcommittee Webinar, visit http://www.asmfc.org/calendar/12/2018 for more information

January 9 (9:30 - 11:30 AM)
American Lobster Technical Committee Webinar, visit http://www.asmfc.org/calendar/1/2019 for more information

January 28-31
American Lobster Benchmark Stock Assessment Workshop, Massachusetts Division of Marine Fisheries, 836 South Rodney French Boulevard, New Bedford, MA

January 29 - 31
New England Fishery Management Council, Portsmouth Harbor Events Center, Portsmouth, NH

February 5 - 7
ASMFC Winter Meeting, Westin, 1800 South Eads Street, Arlington, VA

February 12 - 14
Mid-Atlantic Fishery Management Council, Hilton Virginia Beach Oceanfront, 3001 Atlantic Avenue, Virginia Beach, VA

March 4 - 8
South Atlantic Fishery Management Council, Westin Jekyll Island, 110 Ocean Way, Jekyll Island, GA

April 9 - 11
Mid-Atlantic Fishery Management Council, Icona Golden Inn, 7849 Dune Drive, Avalon, NJ

April 16 - 18
New England Fishery Management Council, Hilton Hotel, Mystic, CT

April 29 - May 2
ASMFC Spring Meeting, Westin, 1800 South Eads Street, Arlington, VA

The Atlantic States Marine Fisheries Commission was formed by the 15 Atlantic coastal states in 1942 for the promotion and protection of coastal fishery resources. The Commission serves as the deliberative body of the Atlantic coastal states, coordinating the conservation and management of nearshore fishery resources, including marine, shell and diadromous species. The fifteen member states of the Commission are: Maine, New Hampshire, Massachusetts, Rhode Island, Connecticut, New York, New Jersey, Pennsylvania, Delaware, Maryland, Virginia, North Carolina, South Carolina, Georgia, and Florida.

Report From the Chair: Reflections on Our Past & Future

For this issue, we are dedicating this space to Commission Chair James Gilmore and the speech he presented to Commissioners at our 77th Annual Meeting in New York City in October 2018.

"This meeting holds special meaning for me. As a New Yorker, born and raised, and someone who has worked in the city (and in the South Tower of the Twin Towers), I am profoundly proud of this city and its people, who have had to come together to deal with one of the nation's worst tragedies. As horrible as 9/11 was, the ability of New Yorkers to set aside their differences and personal losses to come to each other's aid was inspiring and uplifting. It renewed my faith in the goodness of people and their ability to unite and accomplish great feats for a common cause. My fellow New York Commissioners and I felt so strongly about this notion of strength through unity – the ability of people with diverse interests and backgrounds to unify for a greater good – that we chose to use the image of the One World Trade Center as our Annual Meeting logo.

New York also has immense historical significance to the Commission. It was one of a handful of states that came together through the Eastern States Conservation Conference in 1937 to discuss the concept of forming an interstate commission for the purposes of coordinating state marine fisheries activities along the Eastern Seaboard. Upon the Commission's establishment in 1940, New York served as its headquarters with Wayne Heydecker, New York State Regional Representative for the Council of State Governments, serving as the Commission's Secretary-Treasurer, a position he would hold for the next two decades. The Roosevelt Hotel itself played an important part in the Commission's history, serving as the meeting place for 11 out of the first 17 Annual Meetings. It's at the Roosevelt Hotel where Commissioners solidified their commitment to seek solutions that were in the best interests of their shared fishery resources.

> Our greatest strength is in our ability to work cooperatively for the benefit of the fisheries under our care and those that depend on these resources…

So now we find ourselves back at the Roosevelt Hotel 60 years later, dealing with many of the same issues: declining fish stocks, changing environmental conditions, and growing stakeholder demands. And, I'm here to tell you, as it was so many years ago and throughout the evolution of the Commission, we are all in this together. We are all inextricably connected and it's reflected in our shared interests and the challenges we face. Just look at the resources we manage. They show no loyalty to one region or state. They move up and down the coast, inshore and offshore. Filling the role of predators and prey, seeking optimal environmental conditions to maximize their survival, and striving to produce more offspring than are removed – all part of one big interconnected ecosystem. No one piece of it belongs to New York, or Maine, or North Carolina. And yet we divvy up the resources, each of us seeking the biggest piece of pie we can get. I don't blame us, I'm in there with the next guy trying to do what I think is right for our fishermen. But, in doing so, in our struggle to ensure that we get our fair piece, I think we can easily lose sight of the larger picture, of all the reasons why we all choose to be in fisheries management: our love of the ocean and its marine resources, and the deep desire to be effective stewards and ensure that these resources are available to those who want to use them now and over the long-run.

As your Chair, I see it as my responsibility to remind you why we are all here and why now, more than ever, we need to re-energize ourselves and recommit to our shared vision of sustainable Atlantic coastal fisheries. Our greatest strength is in our ability to work cooperatively for the benefit of the fishery resources under our care and those that depend on these resources – recreational anglers and the industries they support, commercial fishermen and processors, who enable consumers to purchase and eat fresh fish, as well as those who place value in the non-consumptive aspects of our coastal resources.

The issues before us are great. They include changing ocean conditions and their effect on species distribution and survival; reallocation of resources between recreational and commercial sectors, as well as between the states; increased fisheries/protected species interactions; responding to recent changes in recreational catch estimates; competing ocean uses; and the challenge of maintaining an engaged membership given the ebb and flow of veteran and new Commissioners, in addition to always present fiscal limitations. While the issues may seem daunting, they are not insurmountable. What is required is a renewed commitment by all of us to work through our challenges with respect for each other and the integrity of our process. When we stray from our intended goal, we need to remind ourselves to take a step back and refocus our energies for the common good. We also must remember to not get caught up in us versus them when we do not get what we want. Let's not lose sight of the fact that we are the Commission. What happens to one state ultimately impacts us all.

Fortunately, we have the continued support of Congress and our federal partners, and an outstanding staff to arm us with the needed resources and information to make informed, balanced decisions. And, we have each other – intelligent, dedicated, passionate, innovative stewards of our Atlantic coastal fisheries. Together, there is nothing we cannot accomplish.

It has been a great honor to serve as your Chair this past year. I am excited about the opportunities and challenges ahead and look forward to working with you all in the coming year."

New Stock Assessment Could Lead to Management Changes

Introduction

Until recently, the Atlantic herring stock had been considered healthy and fully rebuilt from a collapsed stock in the 1980s. However, the results of the 2018 benchmark stock assessment have raised new concerns about the Atlantic herring resource. While the stock remains not overfished and was not experiencing overfishing in the terminal year (2017) of the assessment, the assessment did show very low levels of recruitment over the past five years. These results will likely have management implications for the species as regulators work to prevent overfishing from occurring in the coming years. Diminished stock size and, in turn, lowered catch limits will also impact fisheries that rely on Atlantic herring as an important source of bait, such as American lobster, blue crab, tuna, and striped bass fisheries.

Life History

Atlantic sea herring is one of 200 species in the clupeid family, which includes menhaden, shad, and river herring. It inhabits coastal waters of the U.S. from Cape Hatteras, North Carolina through Labrador, Canada, and off the coast of Europe. Herring form the base of the food web as a forage species for many animals, from starfish and whelk to economically important fish such as haddock, cod, and flounder. Even the vast amount of eggs produced during spawning events serve as an important protein source for marine mammals, seabirds, and many fishes throughout the Mid-Atlantic and Northeast.

The species' entire life cycle occurs in the ocean and is closely associated with plankton. After hatching, the larvae drift passively along coastal currents, consuming eggs and larvae of copepods, barnacles, and other invertebrates. After the larvae herring metamorphose into juveniles (called sardines), they begin to gather in schools inhabiting shallow, inshore waters during the warmer months of the year. As they grow into adults, herring continue to feed on plankton. Feeding behavior consists of nightly vertical migrations following the zooplankton that inhabit deep waters by day and surface waters by night. Adults (age three and older) migrate south from summer/fall spawning grounds in the Gulf of Maine and Georges Bank to spend the winter in Southern New England and the Mid-Atlantic.

Herring spawn as early as August in Nova Scotia and eastern Maine, and during October and November in the southern Gulf of Maine, Georges Bank, and Nantucket Shoals. When temperatures are ideal, the ripe adult herring aggregate in massive shoals over habitats consisting of rock, gravel, or sand bottoms ranging from 50-150 feet deep. A single mature female can produce between 30,000 and 200,000 eggs in one spawning event. Schools can produce so many eggs the ocean bottom is covered in a dense carpet of eggs several centimeters thick. Eggs hatch in 10-12 days depending on water temperature.

Commercial Fisheries

The earliest herring fisheries in North America date back 450 years. Today, Atlantic herring is predominantly a commercially caught species with markets in the U.S. and Canada. Since 2000, the domestic ex-vessel value of commercial herring landings has averaged $30 million/year. The most common gears used to catch Atlantic herring are trawls (midwater and bottom) and purse seines. A small fixed-gear fishery continues in Maine.

Atlantic herring catch increased in the 1960s, peaking in 1968 at 477,767 mt (1.05 billion pounds), largely due to a foreign fishery that developed on Georges Bank. Catch declined in the 1980s, averaging 78,164 mt (172 million pounds). Landings in the 2000s were fairly stable around 113,358

Species Snapshot

Atlantic Herring
Clupea harengus

Management Unit: Maine through New Jersey

Common Names: Sea herring, sardine, sild, common herring, Labrador herring, sperling

Interesting Facts:

- Atlantic herring and other clupeid fish have exceptional hearing. They can detect sound frequencies up to 40 kilohertz, beyond the range of most fish. This allows schooling fish to communicate while avoiding detection by predatory fish.
- While most members of the clupeid family are typically 5.9-9.8 inches in length, the tarpon can grow up to 8 feet long and weigh up to 280 pounds.
- Fresh herring bait is considered premium product and demands the highest prices.
- You can find fresh herring in some high-end restaurants and fish shops. Herring is often canned, pickled, or smoked. The meat is off-white and soft. Small fish have a more delicate flavor than larger fish, which tend to taste oilier and pungent.

Age/Length at Maturity: 3 years/9.1 inches

Stock Status: Not overfished and not experiencing overfishing

THE SARDINE INDUSTRY: Washing, draining, and flaking herring at the sardine cannery, Eastport Maine. From a photograph by T.W. Smilie. Image (c) NOAA.

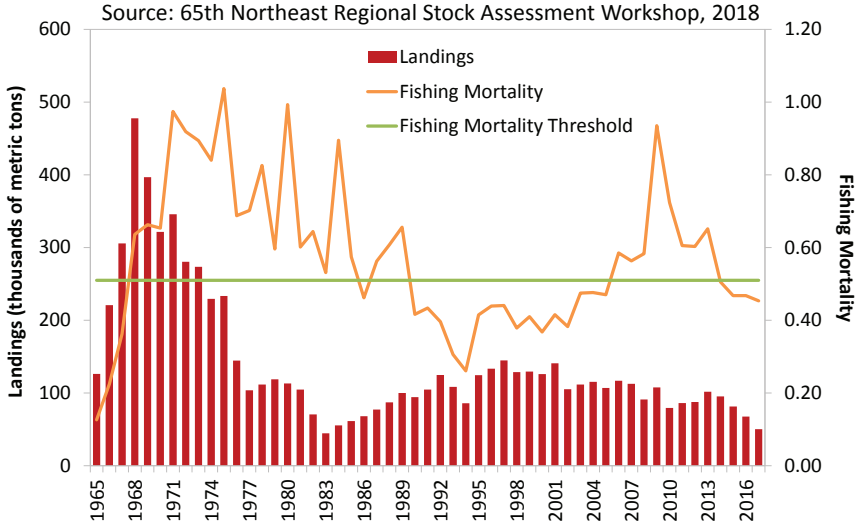
mt (250 million pounds), but have decreased over the past four years to 50,250 mt (111 million pounds) in 2017.

The herring resource was once primarily used for the canning industry, but now provides bait for important fisheries such as lobster, blue crab, tuna, and striped bass. The fish are also a valued commodity overseas where they are frozen and salted.

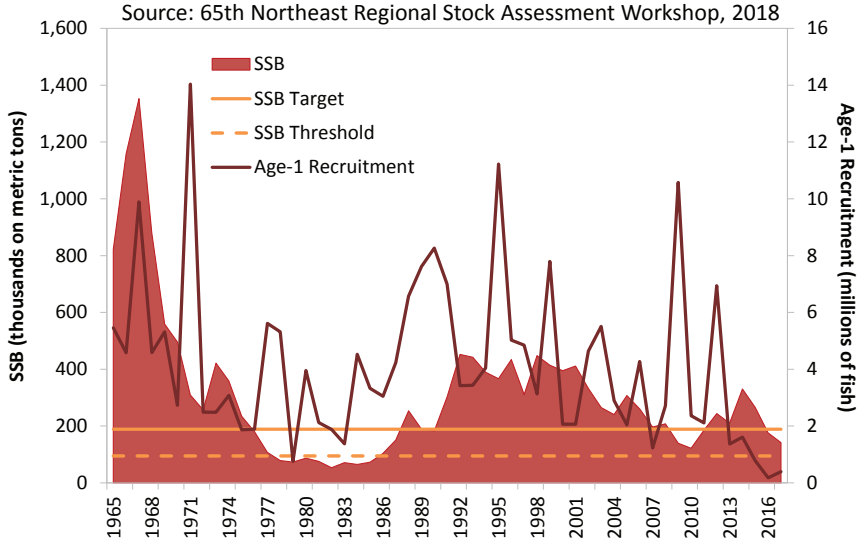
Stock Status

The 2018 benchmark stock assessment, conducted by the Northeast Fisheries Science Center, provided an updated picture of stock health. While Atlantic herring were not overfished and overfishing was not occurring in the terminal year (2017) of the assessment, the report highlighted concerns about trends in recruitment and spawning stock biomass (SSB). Recruitment, a measure of how many herring are born into the population, has been well below the time series average for the past five years. In particular, 2016 recruitment was the lowest on record at 1.7 million fish. While recruitment has been variable throughout time, recent and continuing low levels of recruitment indicate there will be fewer fish available to harvest in future years. SSB, the portion of the population that is capable of reproducing, has also declined in recent years. In 2017, SSB was estimated at 141,473 mt (312 million pounds). Fishing mortality has also decreased in recent years, with a 2017 level of 0.45, below the fishing mortality threshold of 0.51.

Atlantic Herring Commercial Landings
Source: 65th Northeast Regional Stock Assessment Workshop, 2018



Atlantic Herring Spawning Stock Biomass & Recruitment
Source: 65th Northeast Regional Stock Assessment Workshop, 2018



Atlantic Coastal Management

Atlantic herring is cooperatively managed by the Commission and the New England Fishery Management Council (Council). The Commission's fishery management program seeks to prevent overfishing, provide protection to spawning herring, and promote full utilization of herring catch. Both the Commission and Council use annual quotas, called a total allowable catch (TAC), to manage catch in four areas. Management of Atlantic herring includes conservation of its relatives, alewife and blueback herring, collectively known as river herring. River herring populations have declined and remained low in recent years. As a result, river herring and shad catch caps were implemented in order to minimize bycatch in the directed Atlantic herring fishery.

A key component of the Commission's Amendment 3 is the implementation of seasonal closures in the Gulf of Maine (GOM) to protect spawning herring. These closures use a modified GSI-based spawning monitoring system to track reproductive maturity and better align the timing of closures with the onset of spawning. To address the fact that spawning generally occurs earlier in the eastern GOM, as opposed to western GOM, the closures are implemented in three distinct areas at different times. At its most recent meeting, the Atlantic Herring Management Board initiated two addenda to strengthen the spawning protections in the GOM and consider establishing a spawning protection program in Area 3 (off of Cape Cod and Georges Bank). This was prompted by the results of the 2018 benchmark stock assessment.

In 2017, the Commission implemented Addendum I to Amendment 3 to establish management measures to stabilize the rate of catch in the Area 1A (inshore GOM) fishery and distribute the seasonal quota throughout Trimester 2 (June through September). The Addendum modifies the 'Days Out' program by adding management tools to the FMP, including a weekly harvester landing limit and potential restrictions on transfers-at-sea and carrier vessels. In addition, the Addendum allows state staff to access daily catch report data to better monitor landings in the fishery.

For more information, please contact Megan Ware, Fishery Management Plan Coordinator, at mware@asmfc.org or 703.842.0740.

Coastal Sharks

The Coastal Sharks Management Board approved Addendum V to the Interstate Fishery Management Plan (FMP) for Atlantic Coastal Sharks. The Addendum allows the Board to respond to changes in the stock status of coastal shark populations and adjust regulations through Board action rather than an addendum, ensuring greater consistency between state and federal shark regulations.

	Delaware Bay Origin Horseshoe Crab Quota (no. of crabs)	Total Quota**
State	**Male Only**	**Male Only**
Delaware	162,136	162,136
New Jersey	162,136	162,136
Maryland	141,112	255,980
Virginia*	34,615	81,331

*Virginia harvest refers to harvest east of the COLREGS line only
** Total male harvest includes crabs which are not of Delaware Bay origin.

Previously, the FMP only allowed for commercial quotas, possession limits, and season dates to be set annually through specifications. All other changes to commercial or recreational management could only be accomplished through an addendum or emergency action. In instances when addenda were initiated, the timing of when the addenda were completed and state implementation resulted in inconsistencies between state and federal shark regulations, particularly when NOAA Fisheries adopted changes through interim emergency rules.

Addendum V allows the Board to change a suite of commercial and recreational measures, such as recreational size and possession limits, season length, and area closures (recreational and commercial) in addition to the current specifications for just the commercial fishery, throughout the year when needed. Under this provision, if the Board chooses to adjust measures through Board action, the public will be able to provide comment prior to Board meetings, as well as at Board meetings at the discretion of the Board Chair. Additionally, the Board can still implement changes in shark regulations through an addendum.

In addition, the Board considered proposed federal 2019 Atlantic shark specifications. Similar to recent years, NOAA Fisheries is proposing a January 1 open date for all shark management groups, with an initial 25 shark possession limit for large coastal and hammerhead management groups, with the possibility of in-season adjustments. The Board will set the 2019 coastal shark specifications via an email vote after the final rule is published later this fall.

Addendum V is available at http://www.asmfc.org/uploads/file/5be5af89CoastalSharksDraftAddendumV_Oct2018.pdf and on the Commission's website (www.asmfc.org) on the Coastal Sharks webpage. For more information, please contact Kirby Rootes-Murdy, Senior Fishery Management Plan Coordinator, at krootesmurdy@asmfc.org or 703.842.0740.

Horseshoe Crab

The Horseshoe Crab Management Board approved the harvest specifications for horseshoe crabs of Delaware Bay origin. Under the Adaptive Resource Management (ARM) Framework, the Board set a harvest limit of 500,000 Delaware Bay male horseshoe crabs and zero female horseshoe crabs for the 2019 season. Based on the allocation mechanism established in Addendum VII, the above quotas were set for the States of New Jersey, Delaware, and Maryland and the Commonwealth of Virginia, which harvest horseshoe crabs of Delaware Bay origin.

The Board chose a harvest package based on the Delaware Bay Ecosystem Technical Committee's and ARM Subcommittee's recommendation. The ARM Framework, established through Addendum VII, incorporates both shorebird and horseshoe crab abundance levels to set optimized harvest levels for horseshoe crabs of Delaware Bay origin. The horseshoe crab abundance estimate was based on data from the Benthic Trawl Survey conducted by Virginia Polytechnic Institute (Virginia Tech).

This survey, which is the primary data source for assessing Delaware Bay horseshoe crab abundance for the past two years, as well as the ongoing benchmark stock assessment, has not been funded consistently in recent years. However, due to the efforts of three Senators and six Representatives – namely, Senators Chris Coons (D-DE), Tom Carper (D-DE), Cory Booker (D-NJ); and Representatives Frank Pallone (D-NJ), Frank LoBiondo (R-NJ), Lisa Blunt-Rochester (D-DE), Donald Norcross (D-NJ), Chris Smith (R-NJ), and Bill Pascrell (D-NJ) – and the support of NOAA Fisheries, funding for the survey was restored beginning in 2016. They have also requested that NOAA Fisheries incorporate the survey into the agency's annual budget.

Work is well underway on the 2019 Benchmark Stock Assessment and Peer Review, which will be presented to the Board in May 2019. For more information, please contact Dr. Michael Schmidtke, Fishery Management Plan Coordinator, at mschmidtke@asmfc.org or 703.842.0740.

Northern Shrimp

In response to the continued depleted condition of the northern shrimp resource, the Atlantic States Marine Fisheries Commission's Northern Shrimp Section extended the moratorium on commercial fishing through 2021. This three-year moratorium was set in response to the low levels of biomass and recruitment and the fact that, should recruitment improve, it would take several years for those shrimp to be commercially harvestable.

The 2018 Stock Assessment Update indicates the Gulf of Maine northern shrimp population remains depleted, with spawning stock biomass (SSB) at extremely low levels since 2013. SSB in

2018 was estimated at 1.3 million pounds, lower than SSB in 2017 (1.5 million pounds). Recruitment has also been low in recent years, with 2018 recruitment estimated at two billion shrimp. This is below the time series median of 2.6 billion shrimp. Fishing mortality has remained low in recent years due to the moratorium.

High levels of natural mortality and low levels of recruitment continue to hinder recovery of the stock. Predation contributes significantly to the natural mortality of northern shrimp and has been at high levels over the past decade. In addition, long-term trends in environmental conditions have not been favorable for the recruitment of northern shrimp. Ocean temperatures in the western Gulf of Maine have increased over the past decade, with warmer water temperature generally associated with lower recruitment indices and poorer survival during the first year of life. With ocean temperatures predicted to continue to rise, this suggests an increasingly inhospitable environment for northern shrimp in the Gulf of Maine.

Given this change in the environment and the lack of change in stock status despite the fishery being under a moratorium for the past five years, the Section debated current management approaches and if they are appropriate in the face of changing ocean conditions. Ultimately, the Section unanimously agreed to establish a working group to evaluate management strategies for northern shrimp given changes in species abundance, particularly as a result of changing ocean conditions. In February 2018, the Commission approved guidance that species management boards and sections could use to address shifts in species abundance and distribution. The Section will have the opportunity to use this guidance to determine if or what management changes should be made if the stock has no ability to recover.

While industry members advocated for re-opening the commercial fishery in order to evaluate the stock status and provide economic benefits to local fishermen, Technical Committee analysis showed there is little-to-no possibility of 2019 SSB being greater than it was in 2017, even in the absence of fishing. Given the low biomass of the stock, the Section did not establish a Research Set Aside; however, annual surveys including the summer shrimp survey and the Northeast Fisheries Science Center trawl survey will continue to collect important data on the stock.

The Section also approved Addendum I to the Interstate Fishery Management Plan for Northern Shrimp. The Addendum provides states the authority to allocate their state-specific quota between gear types in the event the fishery reopens.

Finally, the Section established a second working group to review the existing Gulf of Maine Summer Northern Shrimp Survey. This working group will evaluate ways to improve the reliability and efficiency of the survey, including shifting to greater commercial industry involvement in the collection of data. Transitioning the shrimp survey to a commercial platform would be one of the options considered by the working group.

For more information, please contact Megan Ware, Fishery Management Plan Coordinator, at mware@asmfc.org or 703.842.0740.

Spiny Dogfish

The Spiny Dogfish Management Board approved the following coastwide commercial quotas for the 2019-2021 fishing seasons (May 1-April 30): 20,522,832 pounds for 2019/2020; 23,194,835 pounds for 2020/2021; and 27,421,096 pounds for 2021/2022 (see below for state-specific allocations).

Spiny Dogfish State Allocations (in pounds) for the 2019-2021 Fishing Seasons

	Northern Region (ME-CT)	NY	NJ	DE	MD	VA	NC
Possession Limit	6,000	To be specified by the individual southern region states					
Allocation	58%	2.707%	7.644%	0.896%	5.92%	10.795%	14.036%
2019/20	11,903,243	555,716	1,568,900	183,893	1,214,957	2,215,484	2,880,640
2020/21	13,453,004	628,069	1,773,165	207,835	1,373,141	2,503,932	3,255,689
2021/22	15,904,236	742,507	2,096,248	245,704	1,623,336	2,960,166	3,848,898

* Any overages in the above quotas will be deducted from that region's or state's quota allocation in the subsequent year. Similarly, any eligible rollovers from one season can be applied to that region's or state's quota allocation the following year.

The quotas are consistent with the measures recommended to NOAA Fisheries by the Mid-Atlantic Fishery Management Council. The Board also established a 6,000 pound commercial trip limit for the northern region states of Maine through Connecticut, while New York through North Carolina have the ability to set state-specific trip limits based on the needs of their fisheries. The Commission's actions are final and apply to state waters (0-3 miles from shore). The Mid-Atlantic and New England Fishery Management Councils will forward their recommendations for federal waters (3 –200 miles from shore) to the NOAA Fisheries Greater Atlantic Regional Fisheries Administrator for final approval.

The quotas are based on the 2018 Stock Assessment Update, which indicates that while the population is not overfished and overfishing is not occurring, biomass has declined, requiring an approximate 46% reduction in the 2019-2020 quota to ensure that overfishing does not occur. The next benchmark stock assessment is currently scheduled for completion in 2021. For more information, please contact Kirby Rootes-Murdy, Senior Fishery Management Plan Coordinator, at krootes-murdy@asmfc.org or 703.842.0740.

ASMFC Seeks Input on Options for Summer Flounder, Scup and Black Sea Bass Management

The Commission's Summer Flounder, Scup and Black Sea Bass Management Board is seeking public comment on Draft Addenda XXXI and XXXII to the Summer Flounder, Scup and Black Sea Bass Fishery Management Plan (FMP). Draft Addendum XXXI and the Mid-Atlantic Fishery Management Council's complementary framework consider adding the following management options to the Summer Flounder, Scup, and Black Sea Bass FMP.

1. Conservation equivalency for the recreational black sea bass fishery
2. Conservation equivalency rollover for summer flounder
3. Transit provisions for Block Island Sound for recreational and/or commercial fisheries for all three species
4. Slot limits (not currently a management option in the Council's FMP)

The Draft Addendum aims to increase the suite of tools available for managing summer flounder, scup and black sea bass, as well as reduce inconsistencies between state and federal regulations. This action does not consider implementing black sea bass conservation equivalency or slot limits for any of the three species in 2019. Rather, the options would update the FMPs to allow these management tools to be used in future years.

Draft Addendum XXXII was initiated to establish new recreational management programs for summer flounder and black sea bass, as the current addenda under which the two fisheries are currently managed (Addenda XXVIII and XXX, respectively) expire at the end of 2018. The Draft Addendum proposes two options for each recreational fishery: (1) coastwide management (the default program for both species under the FMP), or conservation equivalency for summer flounder; and (2) setting measures through a specifications process.

The Draft Addendum seeks to address several challenges with the recreational management of summer flounder and black sea bass. Since the adoption of the FMP, shifts in abundance, distribution, and behavior of these two species have created challenges in constraining harvest to the coastwide recreational harvest limit (RHL) while providing fair and equitable access to fishermen throughout the species' ranges. In addition, the use of highly variable and inherently delayed annual harvest estimates to establish management measures for the subsequent year has led to regulatory instability, regulatory disparities, and frustration on the part of stakeholders.

Setting measures through specifications would be a procedural change, allowing regional management to reflect the current condition and distribution of the stocks and fisheries, and enabling measures to be established based on more complete harvest data rather than preliminary projections. This process would eliminate the need for measures to be established through addenda; instead, the Board would approve measures in the late winter or early spring each year, based on technical committee analysis of harvest estimates and other information on resource availability. Public input on specifications would be gathered by states through their individual public comment processes. For each species, the Draft Addendum also includes proposed standards and guiding principles to structure how measures are set in order to provide fair and equitable access to the resource, and increase regulatory stability.

States from Massachusetts through Delaware are conducting public hearings on the Draft Addenda throughout November; the details of those hearings can be found at http://www.asmfc.org/calendar/. Interested groups are encouraged to provide input on Draft Addenda XXXI and XXXII either by attending state public hearings or providing written comment. Draft Addenda are available at http://www.asmfc.org/files/PublicInput/SF_Scup_BSB_DraftAddendumXXXI_PublicComment_Oct2018.pdf and http://www.asmfc.org/files/PublicInput/SF_BSB_DraftAddendumXXXII_PublicComment_Oct2018.pdf. They can also be accessed on the Commission website (www.asmfc.org) under Public Input. Public comment will be accepted until 5:00 PM (EST) on November 29, 2018 and should be forwarded to Caitlin Starks, Fishery Management Plan Coordinator, 1050 N. Highland St., Suite 200 A-N, Arlington, Virginia 22201; 703.842.0741 (fax) or at comments@asmfc.org (Subject line: Draft Addendum XXXI and XXXII).

Boy with scup by Mark Terciero

Photo courtesy of open boat Laura Lee

Living shorelines, or soft shorelines, are an approach to shoreline stabilization that preserves natural sand edge or vegetated shoreline. An increasingly popular management strategy along the Atlantic coast, living shorelines not only control erosion but create environmentally desirable features, including habitat and vegetated buffers that improve water quality and reduce the effects of upland runoff. This type of shoreline protection is mostly used along shorelines fronting bays, sounds, and in other estuarine settings, as beach and inlet systems experience energy levels that are higher than those for which natural materials can successfully be employed. Unlike traditional bulkhead or revetment approaches to shoreline protection, living shorelines also tend to dissipate rather than reflect wave energy.

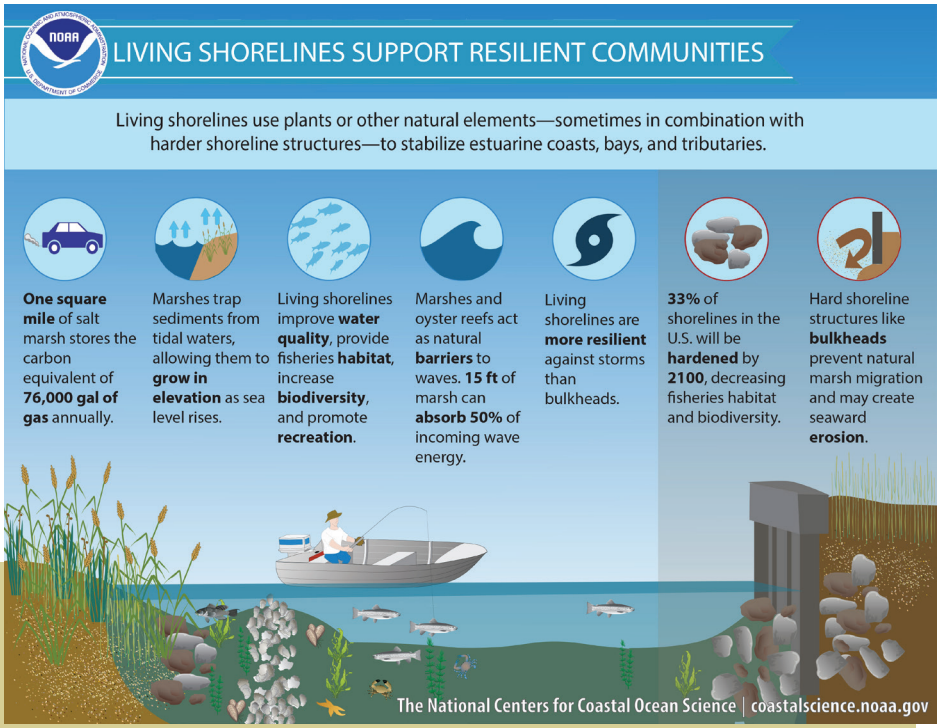
NOAA defines living shorelines as: "A shoreline management practice that provides erosion control benefits; protects, restores, or enhances natural shoreline habitat; and maintains coastal processes through the strategic placement of plants, stone, sand fill, and other structural organic materials." These "green" erosion control installations are often compared to "gray" infrastructure like seawalls and revetments. Unlike their gray alternatives, living shorelines integrate habitats across the shoreline landscape, by promoting the land-water continuum, provide enhanced habitat for fish and wildlife, naturally adapt to changing sea levels in the face of climate change, and enhance the natural beauty of their adjacent properties.

As sea level rise continues, armoring shorelines against wave energy and erosion will continue to be important to those living along coastal waters. Using living shorelines to accomplish this will ensure connections remain established between the uplands and estuaries to maintain or even improve the health of the important fish habitats they sustain.

In 2010, the Commission published *Living Shorelines: Impacts of Erosion Control Strategies on Coastal Habitats*, with the purpose of providing resource managers and the general public with a concise comparative discussion of the benefits of living shorelines, and a case study of successful projects to use for reference within their own programs.

Since then, there has been a growing body of literature and lessons learned. This new information has been incorporated into a factsheet that features selected case studies, websites, and references in support of the application of best practices moving forward. The factsheet will be available on the Commission's website at http://www.asmfc.org/habitat/program-overview (under Sedimentation Management) by the end of the year. A copy of the full Report can be found at - http://www.asmfc.org/uploads/file/hms10LivingShorelines.pdf.

For more information, please contact Lisa Havel, Habitat Committee Coordinator, at lhavel@asmfc.org or 703.842.0840.



The Living Shorelines Act

The importance of living shorelines has also gained the attention of federal legislators, with Representative Frank Pallone (D-NJ-6) and Senator Chris Murphy (D-CT) having introduced the Living Shorelines Act (H.R. 4525 and S. 3087). While the bills are unlikely to advance during this year's lame duck session, both Members of Congress intend to reintroduce the Living Shorelines Act in 2019. The Living Shorelines Act would authorize $25 million per year to establish a new NOAA grant program for states, local governments, and NGOs to create living shorelines. As drafted, the Living Shorelines Act would award a 1:1 federal funding match to implement large- and small-scale, climate-resilient living shoreline projects based on a project's potential to protect communities, the environmental conditions of the site, the ecological benefits of the project, and a project's ability mitigate erosion and flooding, absorb coastal storms, and sustain coastal ecosystems. Innovation in the use of natural materials to protect coastal communities, habitats, and natural system functions is encouraged and the Living Shorelines Act seeks to prioritize projects in areas with a history of storms and coastal inundation or erosion.

For more information, please contact Deke Tompkins, Legislative Executive Assistant, at dtompkins@asmfc.org.

ACCSP: What Do You Do?

Fisheries Management and Data Collection Applications

Meet our Software Team: Team Lead Karen Holmes and Senior Developer Nico Mwai. Together, they manage the Standard Atlantic Fisheries Information System, a fisheries data collection system used by thousands of dealers and harvesters all along the Atlantic coast.

We asked them a few questions to learn more about what they do at ACCSP…

1. How would you describe the Software Team's role at ACCSP? What does your day-to-day look like?

The Software Team is responsible for the fisheries management and data collection applications in use by ASMFC state members and ACCSP partners. Applications include all Standard Atlantic Fisheries Information Systems (SAFIS) applications such as Electronic Dealer Reporting (eDR) and Electronic Trip Reporting (eTRIPs), as well as specialized applications for lobster management, highly migratory species reports, and state eLogbooks.

Requirements for applications are generally provided by partners based on state/federal regulations and it is the responsibility of the Software Team to address each of these requirements within the framework of an application. An example might include a state requirement to report on shellfish to its Department of Public Health. This would require the team to develop an understanding of the new fields required, how those fields might impact an application and database, and the how they can be incorporated in a way that makes sense to the end user. The Software Team works closely with partners and end users to identify solutions and see them through to completion.

A master plan of development is identified and reviewed each year during the Information Systems Committee's annual meeting. Short-term goals might include an enhancement to an existing application, such as the ability to report target species in eTRIPS. Long-term goals are multi-year projects like the SAFIS redesign.
On a good day, a Software Team member may spend hours coding and/or analyzing and reviewing new requests. The overall goal and vision of the Software Team is to render the challenging business practices spread over multiple partners and systems into a responsible and complete fisheries management tool that will help dealers, fishermen, and state/federal staff.

2. How has fisheries data collection evolved since you started with ACCSP?

The Software Team has witnessed a growing awareness - both among ACCSP partners and the public at large - of the importance of detailed, timely fisheries management data. Consequently, the goal of ACCSP software applications is to support more robust data collection. Data collected today have a higher degree of specificity than they did ten or fifteen years ago. For example, software is currently being coded to include exacting information on gears and attributes and latitude/longitude are being used to determine areas fished.

3. What are the big projects you're currently working on?

A multi-year project to redesign the SAFIS applications and database is currently underway. This project, which will touch each of the existing SAFIS applications as well as the underlying database structures, aims to produce a more robust fisheries data collection system able to transition data to and from external systems and partners in a cohesive, one-stop repository. It will incorporate business rules and regulations from all ACCSP partners and will impact all current applications. It is the role of the Software Team to understand the requirements and business rules needed to guide development. It is an ambitious goal, and we are on our way.

4. Are there any new technologies you hope to incorporate into ACCSP's systems in future?

The Software Team is looking to standardize its data transfer processes using REST Application Program Interfaces (APIs). APIs are code that enable two software programs to talk to one another, sort of like how telephones allow people to talk to one another. A Representational State Transfer, or REST, API is a type of API that allows the exchange of information between computer systems by way of the Internet.

When one API initiates a communication, the REST API is able to respond automatically and a transfer of information can occur. This would be like needing to enter a 10-digit code from your phone to reach another—when the format is followed, the receiving phone activates (rings) automatically, and the two users can now communicate. That is, provided the users are speaking the same language. In the same way, two APIs must communicate using the same language so that information can be exchanged between the two. ACCSP's REST APIs will provide data in a data "language" called JSON, or JavaScript Object Notation.

By facilitating the automated transfer of data between systems, these REST APIs in JSON will allow for the creation of more useful 3rd party tools like mobile applications and remote servers.

ACCSP is also undergoing a security audit that will likely lead to an increased use of two-factor authentication via Authenticator apps and USB security keys.

2018 Midterm Elections Update

The 2018 midterm elections on the Atlantic coast featured contests for eleven governors, eleven U.S. Senators, and every Member of the U.S. House on November 6, 2018. All nine of ASMFC's Legislative Commissioners on ballots won their election contests.

Governor

Eleven Atlantic coast states held elections for governor. Seven incumbents sought reelection and won. In the remaining four states of Maine, Connecticut, Florida and Georgia, new governors will be sworn-in. However, Georgia's contest between Stacey Abrams (D) and Brian Kemp (R) to replace term-limited Governor Nathan Deal (R) remains contested.

ASMFC Legislative Commissioners/ State Legislatures

Four Atlantic state legislative chambers flipped from Republican to Democratic majorities: Maine's Senate, New Hampshire's House and Senate, and New York's Senate. In the Connecticut Senate, Democrats won control and broke last session's 18-18 split majority.

U.S. Senate

U.S. Senate election contests were held in eleven Atlantic coast states, with the incumbent seeking reelection and winning in ten. The Florida contest between incumbent Bill Nelson (D) and Sen Rick Scott (R) is still being contested. Senate Republicans picked up at least one seat and hold a 51-47 majority, which includes Senators Bernie Sanders (I-VT) and Angus King (I-ME) who caucus with Democrats.

U.S. House of Representatives

In the U.S. House, nearly a quarter (104) of the chamber's membership from the 115th Congress won't return next year (the most since 1992). Democrats control a 232-198 advantage with four races still undecided. Member and staff changes on the House Natural Resources and Appropriations Committees will have an immediate impact on federal fisheries policy and appropriations.

For more information, please contact Deke Tompkins, Legislative Executive Assistant, at dtompkins@asmfc.org.

*published 11/16/2018

2018 Elections for Governor				
State	**Winner**	**Party**	**Result**	**Flip**
Maine	Janet Mills	D	First term	Y
New Hampshire	Chris Sununu	R	Reelected	N
Massachusetts	Charlie Baker	R	Reelected	N
Rhode Island	Gina Raimondo	D	Reelected	N
Connecticut	Ned Lamont	D	First term	N
New York	Andrew Cuomo	D	Reelected	N
Pennsylvania	Tom Wolf	D	Reelected	N
Maryland	Larry Hogan	R	Reelected	N
South Carolina	Henry McMaster	R	Reelected	N
Georgia	Stacey Abrams (D) OR Brian Kemp (R)		First term	
Florida	Ron DeSantis	R	First term	N
ASMFC Legislative Commissioners				
State	**Winner**	**Party**	**Result**	
New Hampshire	Sen David H. Watters	D	Reelected	
Massachusetts	Rep Sarah Peake	D	Reelected	
Rhode Island	Sen Susan Sosnowski	D	Reelected	
Connecticut	Sen Craig A. Miner	R	Reelected	
New York	Sen Philip M. Boyle	R	Reelected	
Delaware	Rep William J. Carson	D	Reelected	
Maryland	Del Dana Stein	D	Reelected	
North Carolina	Rep Bob Steinburg	R	Elected to Senate	
Florida	Rep Thad Altman	R	Reelected	
2018 for U.S. Senate Races				
State	**Winner**	**Party**	**Result**	**Flip**
Maine	Angus King	I	Reelected	N
Massachusetts	Elizabeth Warren	D	Reelected	N
Rhode Island	Sheldon Whitehouse	D	Reelected	N
Connecticut	Chris Murphy	D	Reelected	N
New York	Kirsten Gillibrand	D	Reelected	N
New Jersey	Bob Menendez	D	Reelected	N
Pennsylvania	Bob Casey Jr.	D	Reelected	N
Delaware	Tom Carper	D	Reelected	N
Maryland	Ben Cardin	D	Reelected	N
Virginia	Tim Kaine	D	Reelected	N
Florida	Rick Scott (R) OR incumbent Bill Nelson (D)			
2018 Elections for U.S. House of Representatives				
State	**Winner**	**Party**	**Result**	**Flip**
ME-02	Jared Golden	D	First Term	Y
NH-01	Chris Pappas	D	First term	N
MA-03	Lori Trahan	D	First term	N
MA-07	Ayanna Pressley	D	First term	N
CT-5	Jahana Hayes	D	First term	N
NJ-02	Jeff Van Drew	D	First term	Y
NJ-03	Andy Kim	D	First term	Y
NJ-07	Tom Malinowski	D	First term	Y
NJ-11	Mikie Sherrill	D	First term	Y
VA-02	Elaine Luria	D	First term	Y
VA-10	Jennifer Wexton	D	First term	Y
SC-01	Joe Cunningham	D	First term	Y
FL-26	Debbie Mucarsel-Powell	D	First term	Y
FL-27	Donna Shalala	D	First term	Y

ROY W. MILLER continued from page 1

Roy (center) with past Award recipients (from left): Pat Augustine, Ritchie White, David Borden and Jack Travelstead

the Governor's appointment and continues to serve to this day without fail. As Governor Appointee, Mr. Miller continues to chair management boards and has been a regular visitor to Capitol Hill, keeping staffers apprised of important developments in Delaware and at the Commission. At one such meeting with former Congressman Carney's staff, Mr. Miller expressed his concern about funding shortfalls that resulted in the discontinuance of the Mid-Atlantic Horseshoe Crab Trawl Survey. That meeting and others that followed ultimately led to the restoration of the survey's funding in 2016. The survey is now supported by Senators and Representatives throughout the Mid-Atlantic; the survey's third consecutive year was completed this October.

Throughout his four decades of service, Mr. Miller has distinguished himself by his dedication to the Commission's management process. An insightful and respectful debater, and one of the most collegial Commissioners, Mr. Miller has consistently sought compromise instead of contention. These traits, combined with his long and meritorious record of accomplishments and dedication to sustainable fisheries management, make him a most worthy award recipient.

The Commission instituted the Hart Award in 1991 to recognize individuals who have made outstanding efforts to improve Atlantic coast marine fisheries. The Hart Award is named for one of the Commission's longest serving members, Captain David H. Hart, from the State of New Jersey, who dedicated himself to the advancement and protection of marine fishery resources.

ROY COOPER
Governor
MICHAEL S. REGAN
Secretary
STEPHEN W. MURPHEY
Director

Feb.6, 2019

MEMORANDUM

TO: Marine Fisheries Commission

FROM: Chris Batsavage, Special Assistant for Councils

SUBJECT: Mid-Atlantic Fishery Management Council Meeting Summary-Dec. 10-13, 2018

Issue
This memo informs the Marine Fisheries Commission of the issues discussed and actions taken by the Mid-Atlantic Fishery Management Council.

Findings
- The memo highlights management actions of particular interest to the Marine Fisheries Commission.
- Additional information about the meeting can be found in the Mid-Atlantic Fishery Management Council meeting report and news release in the briefing book.

Action Needed
For informational purposes only, **no action is needed at this time.**

Overview
The Mid-Atlantic Fishery Management Council met on Dec. 10-13, 2018 in Annapolis, MD. The council met jointly with the Atlantic States Marine Fisheries Commission's Summer Flounder, Scup, and Black Sea Bass Management Board to discuss several topics related to management of summer flounder, scup, and black sea bass. Highlights of the management actions taken by the council are discussed below.

Summer Flounder Commercial Issues Amendment
The council and board moved to postpone final action on the Summer Flounder Commercial Issues Amendment until their joint February 2019 meeting, but that meeting was recently cancelled due to the ongoing federal government shutdown. The public comments received on commercial allocations were divided, so there was not an option in the amendment that would satisfy everyone. A motion was made to allow states to submit additional allocation options for consideration at the next meeting, but it narrowly failed. However, this motion could be made again at a subsequent meeting. As such, it is uncertain when final action will occur and if so, what preferred options will be selected by the council and board.

2019 Recreational Summer Flounder Management Measures
The council and board delayed setting 2019 recreational summer flounder management measures until their February 2019 meeting due to the timing of the benchmark stock assessment for this species. However, the council's February meeting was cancelled, and the stock assessment results will not be ready next month due to the ongoing federal government shutdown. The council and board need the stock assessment results to determine the most appropriate management measures.

2019 Recreational Black Sea Bass Management Measures
The council and board recommended maintaining the 2018 federal waters recreational management measures in 2019 north of Cape Hatteras (May 15-Dec. 31 open season, 12.5-inch minimum size limit and a 15-fish possession limit). The council and board also recommended that if state waters regulations do not constrain harvest to the recreational harvest limit, then the federal waters regulations north of Cape Hatteras will be a May 15 – Sept. 15 open season, 14-inch minimum size limit and a 5-fish possession limit. States also have the option to open their recreational black sea bass fishery in February with a 12.5-inch minimum size limit and 15-fish bag limit as long as they modify their regulations later in the year to account for the harvest in February. North Carolina elected to open the recreational black sea bass season north of Cape Hatteras in February and will delay reopening the season in May to account for the harvest.

Summer Flounder, Scup, and Black Sea Bass Framework on Conservation Equivalency, Block Island Sound Transit, and Slot Limits
The council and board took final action on a framework and addendum that allows conservation equivalency (state or region-specific management) for black sea bass starting in 2020, slot limits for the recreational summer flounder and black sea bass fisheries, and federal waters transit in Block Island Sound (Rhode Island) when state and federal regulations for summer flounder, scup and black sea bass differ. Conservation equivalency means that federal regulations are waived for the state regulations once NOAA Fisheries determines that the state regulations are equivalent to coast wide regulations—this has been in place for summer flounder since 2001. Allowing slot limits for the recreational summer flounder and black sea bass fisheries include the use of regular slot limits, split slot limits, and trophy fish. However, these are additional management tools that may not be implemented any given year.

Upcoming Meeting
The next regularly scheduled meeting of the Mid-Atlantic Fishery Management Council on Feb. 11-14 at the Hilton Virginia Beach Oceanfront in Virginia Beach, VA was cancelled due to the ongoing federal government shutdown. The meeting was tentatively rescheduled for March 6-7 at the same location.

December 2018 Council Meeting Summary

December 10-13, 2018

Annapolis, Maryland

The following summary highlights actions taken and issues considered at the Mid-Atlantic Fishery Management Council's December 2018 meeting in Annapolis, MD. Presentations, briefing materials, and webinar recordings are available on the Council website at www.mafmc.org/briefing/december-2018.

Summer Flounder, Scup, and Black Sea Bass 2019 Recreational Specifications

The Council met jointly with the Atlantic States Marine Fisheries Commission's Summer Flounder, Scup, and Black Sea Bass Board (Board) to develop recreational specifications for summer flounder, scup, and black sea bass for 2019.

Black Sea Bass

The Council and Board reviewed recent recreational fishery performance and recommendations from the Monitoring Committee, Advisory Panel, and staff for 2019 recreational black sea bass management measures. To achieve the 2019 **recreational harvest limit of 3.66 million pounds**, the Council and Board agreed to maintain status quo recreational management measures in federal waters. These include a **12.5-inch total length minimum fish size**, a **15 fish possession limit**, and a **May 15 - December 31 open season**. The Council and Board also agreed that if the states do not take appropriate action to ensure harvest does not exceed the 2019 recreational harvest limit, a set of backstop measures including a 14 inch minimum fish size, a 5 fish possession limit, and a May 15 - September 15 open season should be implemented in federal waters and in all state waters from Maine through North Carolina, north of Cape Hatteras. The Board will approve proposals for state measures during their February 2019 meeting. States have the option of opening their recreational black sea bass fisheries in state and federal waters from February 1-28, 2019 with a 12.5 inch minimum fish size and 15 fish bag limit.

Scup

The Council and Board reviewed recent recreational fishery performance and recommendations from the Monitoring Committee, Advisory Panel, and staff for 2019 recreational scup management measures. To achieve the 2019 **recreational harvest limit of 7.37 million pounds**, the Council and Board agreed to maintain status quo recreational management measures in federal waters. These include a **9-inch total length minimum fish size**, a **50 fish possession limit**, and a **year-round open season**. The Board voted to continue their regional approach to recreational scup management in state waters. The Board will approve proposals for state measures during their February 2019 meeting.

Summer Flounder

The Council and Board reviewed recent recreational fishery performance for summer flounder, and a planned schedule for reviewing and responding to the recent benchmark stock assessment. This assessment was peer reviewed in November 2018, and the assessment report will be finalized in early 2019. Due to this timing, the Council and Board will delay adopting 2019 recreational management measures until their joint February 2019 meeting in Virginia Beach, VA, where they will also consider revisions to the 2019 summer flounder recreational harvest limit.

Summer Flounder, Scup, and Black Sea Bass Framework on Conservation Equivalency, Block Island Sound Transit, and Slot Limits

After reviewing public comments and a draft impacts analysis, the Council and Board took final action on a joint framework and addendum for summer flounder, scup, and black sea bass. They agreed to allow use of conservation equivalency in the recreational black sea bass fishery in future years, starting in 2020. The Board and Council will annually decide whether to use conservation equivalency for black sea bass, which would allow federal waters recreational management measures to be waived and instead require anglers to abide by the measures of the state where they land their catch. They also recommended that non-federally permitted recreational and commercial vessels be allowed to transit federal waters in Block Island Sound while in possession of summer flounder, scup, and black sea bass legally harvested from state waters. They recommended that such transit be allowed in the same area as the existing striped bass transit zone. Lastly, the Council agreed to modify their Summer Flounder, Scup, and Black Sea Bass Fishery Management Plan to allow for a maximum size limit to be used in the recreational fisheries for summer flounder and black sea bass. This will allow for the use of regular slot limits, split slot limits, and trophy fish. It is important to emphasize that decisions regarding black sea bass conservation equivalency and slot limits provide additional "tools in the toolbox" and do not implement these measures for any particular fishing year.

Summer Flounder Commercial Issues Amendment

The Council and Board moved to postpone final action on the Summer Flounder Commercial Issues Amendment until their joint February 2019 meeting. The groups considered a motion that would have established a deadline for states to submit proposals for additional commercial allocation options, to be considered at the February meeting; however, this motion did not pass. The Council and Board then voted to postpone selecting preferred alternatives for all amendment issues (revisions to FMP objectives, federal permit requalification, commercial allocation, and landings flexibility framework provisions) until February. Additional information about this decision is available here.

2019 Stock Assessment and Catch Limit Specification Timing

The Council and Board discussed potential timelines for the scheduled stock assessments and the catch limit specification setting process in 2019 for summer flounder, scup, black sea bass, and bluefish. At their joint meeting in February 2019, the Council and Board will receive the results of the 2018 peer review of the summer flounder benchmark stock assessment and will recommend revised 2019 commercial and recreational catch limits and set new specifications for 2020-2021. Operational stock assessment updates are scheduled in 2019 for scup, black sea bass, and bluefish. These operational assessment updates will incorporate recent survey information, commercial catch (harvest and discards) data and the revised time series of recreational catch data from the Marine Recreational Information Program (MRIP). The Council and Board agreed to delay the completion of these operational assessment updates to ensure the most recent information available (i.e. through 2018) will be incorporated to help inform stock status and set specifications. Under the agreed-to schedule, the operational assessment updates and peer review will take place in July 2019, and the Council and Board will set new 2020-2021 commercial and recreational catch limits for all three species in October 2019.

Revised Stock Assessment Process

The Northeast Fisheries Science Center (NEFSC) updated the Council and Board on recently approved changes to the stock assessment process and long-term scheduling for Mid-Atlantic and New England stocks. After two years of development, these changes were approved by the Northeast Regional Coordinating Council (NRCC), whose primary responsibility is to set stock assessment priorities and schedules and consists of leadership from the Mid-Atlantic and New England Councils, the Atlantic States Marine Fisheries Commission (ASMFC), the Greater Atlantic Regional Fisheries Office (GARFO), and the NEFSC. This new process will improve the quality of stock assessments in the region, will allow for greater flexibility and improvements to stock assessments within

a defined process, and will provide for a more strategic and longer-term planning process for research and staffing demands.

Summer Flounder Management Strategy Evaluation (MSE) Presentation

Dr. Gavin Fay (University of Massachusetts Dartmouth) and Dr. Jason McNamee (RI DEM Division of Marine Fisheries) presented an interim report on their Council-funded Management Strategy Evaluation (MSE) to test potential outcomes of different management approaches for the recreational summer flounder fishery. A simulation model is being developed to demonstrate the relative value of an F-based management approach to developing recreational fishing measures compared to the typical approach of evaluating prior year performance and modifying measures annually to constrain recreational harvest to the annual limit. The MSE will also evaluate the effects of accounting for uncertainty in the recreational estimates when adjusting recreational measures. A final report from this project is expected in late winter 2019.

Black Sea Bass Amendment and Review of Progress on ASMFC Strategic Plan for Black Sea Bass

The Council and Board reviewed past discussions related to an amendment to the black sea bass FMP, as well as a strategic plan developed by Board members for reforming black sea bass recreational management. The Board's strategic plan addresses broad issues for black sea bass recreational management, including annual variability in management measures and equity in regional harvest opportunities. The Council and Board agreed that initiation of a joint black sea bass amendment is not needed at this time. They instead agreed to form a working group of Monitoring and Technical Committee, Council, and Board members to further develop and analyze potential approaches for improving stability in recreational management measures from year to year.

Risk Policy Framework: Next Steps

Dr. Doug Lipton (NOAA Fisheries) and Dr. Cyrus Teng (University of Maryland) provided the Council with the final results of a management strategy evaluation (MSE) that analyzed the economic impacts of different risk policy harvest control rules in the summer flounder fishery. The results indicate statistically significant differences in the total net economic benefits between the different control rule alternatives that were evaluated. These differences are highly influenced by the starting condition of the summer flounder biomass with lower catch and, therefore, lower net economic benefit for some harvest control rules when stock biomass is below the biomass at maximum sustainable yield (B_{MSY}). The Council then discussed potential next steps to complete the risk policy framework action that was initiated in 2017. The Council decided to re-evaluate and reconsider the control rule alternatives, both existing and potentially new alternatives, with the results from all available analyses that consider both biological and economic factors. It is anticipated that the Council will take final action on the risk policy framework in 2019. Also scheduled for 2019, as part of the risk assessment review, the Council will review and provide feedback on a decision document the Council's Scientific and Statistical Committee (SSC) would use when defining the appropriate level of uncertainty to be applied to the Overfishing Limit (OFL).

Collaborative Research Update

The Council and Board received a report and meeting summary as a result of the Research Steering Committee webinar held on November 27, 2018. The report detailed the Committee requests for staff and recommendations to the Council. Through consensus, the Council recommended that staff formalize the "program approach," which will detail how the program will follow steps from setting priorities to utilizing project results in a transparent document that defines the role of the Research Steering Committee and that RSA Program Review/Development be added to possible additions in the 2019 Implementation Plan.

Law Enforcement Workshop Report

The Council received a report on the Law Enforcement/For-Hire Workshop held November 13-14, 2018. This workshop addressed several topics, including: (1) Operator versus angler (client) responsibility for fisheries

violations that occur on for-hire vessels, (2) issues related to the sale of fish by private recreational anglers (particularly golden tilefish and tunas); (3) complexity of fishing regulations impacting enforceability. The Council reviewed a summary of recommendations organized under the categories of HMS Permitting, Data Reporting, and Law Enforcement. After some discussion, the Council tasked the Law Enforcement Committee with reviewing the workshop findings and developing formal recommendations for Council consideration at the February 2019 meeting.

Atlantic Large Whale Take Reduction Team Presentation

Dr. Michael Asaro (NOAA Fisheries Greater Atlantic Regional Office) presented an update on efforts to reduce incidental entanglement of North Atlantic right whales. The population of North Atlantic right whales has been in decline since 2010. Recent evidence indicates that the population is experiencing a low rate of reproduction, longer calving intervals, continued mortality from vessel and fishing gear interactions, changes in prey availability, and increased transboundary movement and risk. A number of measures are already in place to reduce the level of serious injury and mortality of large whales in commercial gillnet and trap/pot fisheries. Dr. Asaro provided an overview of proposals recently developed by the Atlantic Large Whale Take Reduction Team (ALWTRT) to further reduce incidental entanglement of North Atlantic right whales. The ALWTRT will meet in March 2019 to develop recommendations for NOAA Fisheries to modify the Atlantic Large Whale Take Reduction Plan.

2019 Implementation Plan

The Council reviewed and approved an implementation plan for 2019. The implementation plan lists activities and priorities for the coming year and is linked to the Council's strategic plan. The final approved plan will be posted at www.mafmc.org/strategic-plan.

Next Council Meeting

Monday, February 11, 2019 – Thursday, February 14, 2019

Hilton Virginia Beach Oceanfront
3001 Atlantic Avenue
Virginia Beach, VA 23151
757-213-3000

MID-ATLANTIC
FISHERY MANAGEMENT COUNCIL

PRESS RELEASE

FOR IMMEDIATE RELEASE
December 18, 2018

PRESS CONTACT: Mary Clark
(302) 518-1143

Final Action on Summer Flounder Commercial Issues Amendment Postponed Until February 2019

During a joint meeting last week in Annapolis, Maryland, the Mid-Atlantic Fishery Management Council (Council) and Atlantic States Marine Fisheries Commission's Summer Flounder, Scup, and Black Sea Bass Board (Board) voted to postpone final action on the Summer Flounder Commercial Issues Amendment until their next joint meeting in February 2019.

The amendment considers several potential changes to the management of the commercial summer flounder fishery and proposes modifications to the fishery management plan goals and objectives for summer flounder.

Discussion during the meeting focused predominantly on options in the amendment that could modify allocations of the commercial summer flounder quota to the states. The current commercial allocations were last modified in 1993 and are perceived by some as outdated given their basis in 1980-1989 landings data. The amendment proposes three sets of alternatives for modifying the current state-by-state allocations. After reviewing public comments on these options, the administrative Commissioner from New York introduced a motion that would have allowed states to submit additional commercial quota allocation options for discussion in February 2019. While some Council and Board members offered support for the motion, others felt that it was too late in the process to introduce new alternatives and that the existing options adequately address the purpose of the amendment. After a lengthy discussion, the motion was defeated due to lack of majority from the Council.

Given the limited time available to discuss the remaining issues addressed in the amendment, the Council and Board voted to postpone final action until their next joint meeting, to be held February 11-14, 2019 in Virginia Beach, VA. Additional information about this action is available at: http://www.mafmc.org/actions/summer-flounder-amendment.

Questions? Contact Kiley Dancy, Fishery Management Specialist, kdancy@mafmc.org, (302) 526-5257.

ROY COOPER
Governor
MICHAEL S. REGAN
Secretary
STEPHEN W. MURPHEY
Director

Feb. 6, 2019

MEMORANDUM

TO: N.C. Marine Fisheries Commission

FROM: Steve Poland, Executive Assistant for Councils

SUBJECT: South Atlantic Fisheries Management Council Meeting Summary Dec. 3 – 7, 2018

Issue
This memo is to update the Marine Fisheries Commission on issues discussed and actions taken by the South Atlantic Fisheries Management Council with attentions to items of relevance to the state of North Carolina.

Findings
- The council partially approved Regulatory Amendment 26 (Recreational Visioning Amendment) which modifies the current 20-fish aggregate bag limit to include no more than 10-fish per species and removes the size limit of three deepwater snapper species.
- Delayed action on Regulatory Amendment 30 (Red Grouper rebuilding plan) until the Science and Statistical Committee can provide recommendations on the Allowable Biological Catch* of the species.
- The Dolphin Wahoo Committee reviewed diet information and considered a request from the Mid-Atlantic Fisheries Management Council to manage some forage species under this plan.
- The council began work on Dolphin Wahoo Amendment 10 by selecting potential items for inclusion that include bag limit sales of fish and reduction in the recreational vessel limit.
- Further information about these findings and other issues that the council discussed can be found in the council meeting report in the briefing book, proceeding this memo.

Action Needed
For informational purposes only, **no action is needed at this time.**

Overview
The South Atlantic Fisheries Management Council met on Dec. 3 – 7, 2018 in Kitty Hawk, NC. Highlights of the discussions and management actions taken by the council are detailed below.

Recreational Visioning Amendment
Regulatory Amendment 26 (Recreational Visioning Amendment) contains actions that reorganize the existing aggregate bag limits to better reflect the species composition of a recreational trip. The council reviewed selected preferred alternatives and considered public

comment received at the meeting before taking final action on the amendment. The North Carolina delegation took issue with the selected preferred alternative or Action 2 which would add a January – February component to the May – August deepwater species season. Concern was raised that the addition of the January – February season risked an early closure by allowing Florida access to the resource during a time of the year where North Carolina has little to access due to poor weather and low fishing effort. This would create the potential for Florida to land all or most of the Annual Catch Limit before the May – August season, possibly triggering an early closure to the fishery. There was considerable discussion about this issue and the seasonality differences between Florida and North Carolina in the blue line tilefish fishery. The council decided to postpone taking final action on Actions 1 – 3 (establish deep water species aggregate, adjust the deep water species season, and specify bag limits for deep water aggregate species) and consider state or regional allocations for the deep water recreational fisheries at a later meeting. Actions approved for Secretarial Review include modify the current 20-fish aggregate bag limit to include no more than 10 fish of any species and removal of the recreational size limit for queen, silk, and blackfin snapper.

Red Grouper

The red grouper assessment update in 2017 found the species was overfished* but overfishing* was not occurring. The finding of overfished status for red grouper triggered a statutory requirement to approve a rebuilding plan within two years to end overfishing. A recommendation by the Science and Statistical Committee to the Council for an Allowable Biological Catch level for red grouper has not been made because of a delay in the review of the updated assessment incorporating new recreational catch estimates. The council is expecting a recommendation be ready for the March 2019 meeting. Draft actions that the council has discussed to end overfishing include extending the spawning season closure off of North and South Carolina through May and setting the commercial trip limit to 200 pounds.

Dolphin Wahoo

In March 2018, the Mid Atlantic Fisheries Management Council sent a letter requesting that the South Atlantic Fishery Management Council consider management of bullet and frigate mackerel as forage species under the Dolphin Wahoo Fishery Management Plan. The Mid-Atlantic Fishery Management Council recently developed a comprehensive forage fish amendment with the purpose of protecting forage species for their managed fisheries by establishing a trip limit and reporting requirement for species identified as forage. During final rule review, the National Marine Fisheries Service removed bullet and frigate mackerel from the list of forage species included in the amendment citing the lack of diet studies confirming that they are consumed by council-managed species prompting the request to the South Atlantic Fishery Management Council. The council discussed the merits of this request and reviewed diet information of dolphin and wahoo from North and South Carolina and considered the importance of bullet and frigate mackerel and other prey species as forage. The council instructed staff to develop a white paper with potential options for managing bullet and frigate mackerel as forage species and investigate the need for management of other prey species. The council will review this information at the March 2019 meeting.

The council began work on Amendment 10 to the Dolphin Wahoo Fishery Management Plan that was previously postponed in 2016. The council reviewed actions that were included in the postponed amendment and discussed the addition of new items for consideration. Potential

actions include revise the Accountability Measures for dolphin, modify the commercial and recreational Annual Catch Targets for dolphin, remove the requirement of possessing a Vessel Operator Card, allow bag limit sales of dolphin, reduce the dolphin recreational vessel limit to 40-fish, modify gear, bait, and training requirements for the commercial longline fishery to compliment Highly Migratory Species longline requirements, and revise sector allocations for dolphin. The council will discuss these actions again at the March 2019 meeting and discuss timing of public scoping.

For-Hire Electronic Reporting

The council was updated on the timing and implementation of the for-hire electronic reporting program. All captains who have a federal for-hire permit will be required to submit weekly landings reports. The publishing of the final rule and implementation of the reporting requirements is expected by mid-2019. An in-person training was held during the December council meeting and additional trainings will be schedule in North Carolina throughout the first half of the year.

Upcoming meeting

The next meeting of the South Atlantic Fisheries Management Council will be March 4 – 8, 2019 in Jekyll Island, GA.

***Definitions**

Allowable Biological Catch - A term used by a management agency, which refers to the range of allowable catch for a species or species group.
Overfishing – Occurs when the rate that fish that are harvested or killed exceeds a specific threshold.
Overfished – Occurs when the spawning stock size of a population is below a specified threshold. This condition significantly reduces the stock's reproductive capacity to replace fish removed by harvest.

SOUTH ATLANTIC FISHERY MANAGEMENT COUNCIL

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Jessica McCawley, Chair | Mel Bell, Vice Chair
Gregg T. Waugh, Executive Director

DECEMBER 3-7, 2018 COUNCIL MEETING REPORT
KITTY HAWK, NORTH CAROLINA

The following summary highlights the major issues discussed and actions taken at the South Atlantic Fishery Management Council's December 2018 meeting in Kitty Hawk, North Carolina. Briefing materials, presentations, and public comments are available on the Council's website at: http://safmc.net/safmc-meetings/council-meetings/

Final Committee Reports contain more details of what was accomplished for each committee and are located on the December 2018 briefing book page. In addition, the Summary of Motions on the Council's website includes all motions from the meeting. Read further details and see images and other links at the December 2018 Council Meeting Round-up Story Map: https://www.arcgis.com/apps/MapJournal/index.html?appid=073b19ccdf1540e78247f2b03e33724f
The December 2018 Meeting Summary is also available at: http://safmc.net/download/Dec2018-SAFMC_MeetingSummaryFinal.pdf

Issue:	Action Taken:	Schedule:
Recreational Visioning Amendment	Regulatory Amendment 26: reviewed & modified document, chose preferred alternatives, selected no action on 3 actions and approved 3 actions for formal review: **Selected No Action On:** **Action 1. Establish a deep-water species aggregate** **Alternative 1 (No Action).** The following recreational Snapper Grouper aggregates are in place in the South Atlantic Region: • Snapper Aggregate: lane snapper, yellowtail snapper, gray snapper, mutton snapper, cubera snapper, queen snapper, blackfin snapper, and silk snapper. • Grouper and Tilefish Aggregate: gag, black grouper, red grouper, scamp, yellowfin grouper, yellowmouth grouper, red hind, rock hind, graysby, coney, sand tilefish, snowy grouper, misty grouper, yellowedge grouper, blueline tilefish, and golden tilefish. • 20-Fish Aggregate: whitebone porgy, jolthead porgy, knobbed porgy, saucereye porgy, scup, gray triggerfish, bar jack, almaco jack, banded rudderfish, lesser amberjack, white grunt, margate, sailor's choice, and Atlantic spadefish.	Revise document and send for formal review by the Secretary of Commerce based on guidance from the= the December 3-7, 2018 meeting. **Approved Actions:** **Action 4.** Remove the 12-inch fork length recreational minimum size limits for queen, silk, & blackfin snapper. **Action 5.** Reduce the recreational minimum size limit for gray triggerfish in the exclusive economic zone off east Florida to 12-inches fork length. **Action 6**. Modify the aggregate bag limit for the 20-fish aggregate –Specify no more than 10 fish can be of any one species within the 20-fish aggregate.

	Action 2. Specify the recreational season for the deep-water species aggregate **Alternative 1 (No Action).** Recreational fishing for blueline tilefish and snowy grouper is allowed from May 1 through August 31, annually. Recreational fishing for wreckfish is allowed from July 1 through August 31, annually. Recreational fishing for other deep-water species (misty grouper, yellowedge grouper, and golden tilefish) is allowed year-round. **Action 3. Specify the aggregate bag limit for the deep-water species aggregate** **Alternative 1 (No Action).** The following bag limits are in place for the grouper and tilefish aggregate and for wreckfish in the South Atlantic Region: • Grouper and Tilefish Aggregate Bag Limit: Three per person per day: gag1, black grouper[1], red grouper, scamp, yellowfin grouper, yellowmouth grouper, red hind, rock hind, graysby, coney, sand tilefish, snowy grouper[2], misty grouper, yellowedge grouper, blueline tilefish, and golden tilefish[3]. [1]Maximum of one gag or black grouper (but not both) per person per day [2]Maximum of one snowy grouper per vessel per day [3]Maximum of one golden tilefish per person per day • The recreational bag limit for wreckfish is one per vessel per day.	
Red Grouper	Regulatory Amendment 30: discussed the AP comments, reviewed and modified the document, and approved all actions. • Revise the rebuilding schedule to the maximum time allowed (Tmax) which is 10 years ending in 2028 with 2019 = Year 1 • Jan thru April no recreational or commercial harvest/possession/sale/purchase of any shallow-water grouper (gag, black grouper, scamp, red grouper, yellowfin grouper, yellowmouth grouper, red hind, rock hind, grasby, or coney) and extend the closure off NC & SC for red grouper in May • Establish a commercial red grouper trip limit = 200 pounds gutted weight	Due to the timing of the SSC's review of the updated stock assessment that incorporates revisions to the MRIP estimates, the Council requested that staff bring Regulator Amendment 30 back at the March 2019 meeting for further review and consideration for final approval.
Sea Turtle Release Gear & Framework Modification	Regulatory Amendment 42 – the Council reviewed and approved the amendment for public hearings.	A public hearing session will be held during the March 2019 meeting. The Council will consider public comments and the need to modify the document.
Allocation Review Trigger Plan	This action would establish a policy that determines which triggers would automatically initiate a review of allocations. The Council reviewed options and provided guidance to staff on drafting an allocation trigger review policy.	The Council will review a draft allocation trigger review policy for review at the March 2019 meeting.

Issue:	Action Taken:	Schedule:
Yellowtail Snapper	Regulatory Amendment 32: The Council reviewed comments on the proposal to modify the accountability measure as a short-term solution to the early closure of the commercial fishery. Based on public and AP input, the Council postponed consideration until after the next yellowtail snapper stock assessment.	The Council will consider this amendment after the next yellowtail snapper stock assessment currently scheduled for completion in late 2019. The SSC will review in early 2020, and the Council will consider the results at the June 2020 meeting.
Recreational Accountability Measures Amendment	The Council provided guidance to staff on items in the document, indicated this amendment would only address snapper grouper and dolphin wahoo FMPs, and approved the amendment for scoping.	Scoping meetings will be held prior to the March 2019 meeting.
Vision Blueprint Biennial Evaluation	The Council provided the following guidance: • Create a webpage/story map to update stakeholders on actions accomplished to-date and those left to be addressed and solicit their input. • Provide list of actions in the Vision Blueprint appendix that were not prioritized for development in 2016-2020 and provide to the Committee in 2019. • Also, during 2019, conduct a stakeholder survey once projects that are still under development are completed (e.g., best fishing practices amendment, recreational permit/stamp, etc.). • Provide evaluation of FMP objectives that was conducted in 2014 as part of the Visioning Project. Bring this material to the Committee at the March 2019 meeting.	The Council directed staff to develop a webpage/story map to update stakeholders on progress to date on vision blueprint activities during 2016-2018 and bring to the committee in March or June 2019 for approval.
Characterization of the Commercial Snapper Grouper Fishery	The Council requested additional details of the study be presented to inform discussions about the "2 for 1" permit reduction program. The Council requested the following: • What was the original intent/rationale of the 2 for 1 program at its inception and was there a target number of permits specified? • Include a permit application in the March 2019 briefing book • Bring back information to March 2019 meeting on total commercial ACL available to the commercial sector. • Consolidate a list of topics/questions to provide to the SERO Permits Office to include in presentation being requested for March 2019.	The requested information will be presented at the March 2019 meeting. The NMFS SERO permits office will also give a presentation at the March 2019 meetng.

Issue:	Action Taken:	Schedule:
Citizen Science Program	The Council reviewed and approved the SOPPs which detail how the program will operate. They were also updated on the Scamp app to collect discard data for the next assessment and a new project to document the historical catch and length distribution for early headboat catches.	Work will continue on the program and these two projects. The Scamp app will be available in January 2019.
Dolphin Wahoo	The Council discussed the Mid-Atlantic Council's request that the South Atlantic Council manage bullet and frigate mackerel as important prey for dolphin and wahoo and provided guidance to staff. The Council also reviewed items for inclusion in Amendment 10 and provided guidance to staff: • **Action 1.** Revise the optimum yield (OY) definition for dolphin. • **Action 2.** Modify the recreational annual catch target (ACT) for dolphin. • **Action 3.** Establish a commercial annual catch target (ACT) for dolphin. • **Action 4.** Allow adaptive management of sector annual catch limits (ACLs) for dolphin. • **Action 5.** Revise the accountability measures for dolphin. • ~~**Action 6.** Revise the acceptable biological catch (ABC) control rule for dolphin and wahoo.~~ Action 6 was removed because it is addressed in another amendment. • **Action 7.** Allow properly permitted vessels with gear onboard that are not authorized for use in the dolphin wahoo fishery to possess dolphin or wahoo. • **Action 8.** Remove the requirement of vessel operators or crew to hold an Operator Card in the Dolphin Wahoo Fishery. • **New Item:** Allow bag limit sales of dolphin for dually permitted for-hire and commercial permit holders. • **New Item:** Modify gear, bait, and training requirements in the commercial longline fishery for dolphin and wahoo to align with HMS requirements (excluding monitoring). • **New Item:** Reduce the recreational vessel limit to 40 fish for dolphin. • **New Item:** Revise the ACLs of dolphin and wahoo to accommodate new MRIP data. • **New Item:** Revise sector allocations for dolphin and wahoo.	Staff will present a white paper at the March 2019 meeting on managing important prey species for dolphin and wahoo. A draft list of options for items to be included in Amendment 10 will also be presented at the March 2019 meeting.

Issue:	Action Taken:	Schedule:
For-Hire Recreational Reporting	The Council received an update on the amendment: The Amendment was approved on June 12, 2018 and the Final Rule is expected to publish in March or April 2019. Council staff conducted a training session on Thursday evening.	A March/April 2019 effective date will allow ACCSP to complete a phone app, so charter captains will not have to purchase a tablet. Also, duel permit holders will not be required to learn two systems. The training will continue, and details will be shared. For-Hire reporting training and outreach and NMFS information meetings will continue in 2019.
Habitat and Ecosystem Based Management	The Council provided guidance on the issue of species expanding northwards and requested the following: 1. Prior to February CCC meeting staff will prepare the following support information to inform and support SAFMC input during the joint session during the March Council meeting: a. Table of recreational and commercial species in the Snapper Grouper and Coastal Migratory Pelagic Management Units for MA/NE regions in pounds caught including identification of management jurisdiction, to include non-managed species b. Table of management and coordination alternatives available to the Council to address species change in distribution and movement north c. Pros and cons on permits d. Tables of ACL for managed species The Council also received a presentation on a proposed wind project off Kitty Hawk.	The Council will have further talks with the MAFMC and NEFMC at the March 2019 meeting.
SEDAR	The Council made appointments to SEDAR 58 (Atlantic Cobia), SEDAR 66 (Golden tilefish), and SEDAR 68 (Scamp). The Council approved terms of reference for the SEDAR snowy grouper update and terms of reference and schedule for SEDAR 68 (Scamp). The Council also received updates on assessment projects and the next SEDAR Steering Committee.	The next SEDAR Steering Committee meeting will be May 16-17, 2019 in Charleston, SC to discuss project planning, long-term priorities, and other issues.

Issue:	Action Taken:	Schedule:
MyFishCount	Council staff gave an update on progress with increasing usage of the app and is exploring how to include a way for fishermen to report losing a catch to sharks.	The app is now available and Council staff will continue working with private recreational fishermen to have them report. This experience will be used by the Council as they continue to work on the permitting and reporting amendment at the June 2019 meeting.

ROY COOPER
Governor

MICHAEL S. REGAN
Secretary

STEPHEN W. MURPHEY
Director

February 6, 2019

MEMORANDUM

TO: N.C. Marine Fisheries Commission

FROM: Randy Gregory, Division of Marine Fisheries, NCDEQ

SUBJECT: Highly Migratory Species Update

Issue
This memo is to inform the Marine Fisheries Commission on issues and activities related to the management of Highly Migratory Species.

Action Needed
For informational purposes only, **no action is needed at this time.**

Overview
Due to the federal government shutdown the Spring Highly Migratory Species Advisory Panel meeting has not been scheduled. The advisory panel is due to discuss pre-draft Amendment 13 for Atlantic bluefin tuna management and pre-draft Amendment 14 for domestic shark quota management.

Tuna
The December General category Atlantic bluefin tuna fishery opened on Dec. 1, 2018 with a 50 metric ton sub-quota. As of Dec. 20, 2018, preliminary commercial landings for the December fishery were 14.1 metric tons. Due to the federal government shutdown on Dec. 22, 2018, no landings updates have been issued. Most of the bluefin caught during the December fishery were landed in Carteret County.

On Jan. 1, 2019, the January General category Atlantic bluefin tuna sub-quota opened with a daily retention limit of one large medium or giant bluefin tuna (measuring 73 inches or greater) per vessel per day/trip. Although it is called the "January" sub-quota, the regulations allow the General category fishery under this quota to continue until the sub-quota is reached or until March 31, whichever comes first, and it will remain closed until the General category fishery reopens on June 1, 2019. NOAA Fisheries transferred 19.5 metric tons of quota from the 28.9 metric ton General category December 2019 sub-quota period to the January 2019 sub-quota period, resulting in a sub-quota of 49 metric tons for the January 2019 period and a sub-quota of 9.4 metric ton for the December 2019 period.

Dealers are required to submit landing reports within 24 hours of a dealer receiving bluefin tuna. General category and Charter/Headboat category vessel owners are required to report their own catch of all bluefin tuna retained or discarded dead within 24 hours of the landing or at the end of each trip. As of Jan. 23, 2019, approximately 32 bluefin tuna have been landed in Dare County since the January sub-quota opened.

The recreational Atlantic bluefin tuna fishery opened Jan. 1, 2019. The bluefin tuna daily retention limit is the default limit of one school, large school, or small medium bluefin tuna (27 inches to less than 73 inches). This default limit applies to both Angling category-permitted vessels and Charter/Headboat category-permitted vessels. Angling and Charter/Headboat vessels may also land one bluefin tuna measuring 73 inches or greater per vessel per year. All recreational vessel owners/operators who recreationally fish for or retain regulated Atlantic tunas (bluefin, yellowfin, bigeye, albacore and skipjack), sharks, swordfish and billfish in Atlantic Federal waters, including the Gulf of Mexico and the Caribbean Sea, must obtain an Highly Migratory Species Angling category permit or a Highly Migratory Species Charter/Headboat permit by accessing the Highly Migratory Species Permit Shop.

Sharks

In December, NOAA Fisheries announced the Final Environmental Impact Statement Available for Amendment 11: Conservation of Shortfin Mako Sharks. The final rule is still in development. The preferred alternatives in the Final Environmental Impact Statement include allowing retention of shortfin mako sharks by persons with a Directed or Incidental Shark Limited Access Permit when caught with pelagic longline or gill net gear and only if the shark is dead at haul back. No landings are allowed of shortfin mako sharks by fishermen using other commercial gear types. Recreational measures include requiring the use of circle hooks in all areas and a minimum size limit of 71 inches fork length for male and 83 inches fork length for female shortfin mako sharks.

Red Drum Landings 2017-2018

Landings are complete through October 31, 2018
2017 landings are final. 2018 landings are preliminary.

Year	Month	Species	Pounds	2009-2011 Average	2013-2015 Average
2017	9	Red Drum	28,280	28,991	35,003
2017	10	Red Drum	58,824	43,644	63,662
2017	11	Red Drum	27,705	14,318	27,643
2017	12	Red Drum	4,714	3,428	2,197
2018	1	Red Drum	2,056	5,885	1,699
2018	2	Red Drum	2,176	3,448	3,996
2018	3	Red Drum	4,797	5,699	3,971
2018	4	Red Drum	17,096	7,848	6,528
2018	5	Red Drum	15,656	13,730	9,664
2018	6	Red Drum	11,673	12,681	6,985
2018	7	Red Drum	9,838	13,777	15,618
2018	8	Red Drum	14,786	21,252	15,846
Fishing Year (Sept 1, 2017 - Aug 31, 2018) Landings			**197,600**		

Year	Month	Species	Pounds	2009-2011 Average	2013-2015 Average
2018	9	Red Drum	11,149	28,991	35,003
2018	10	Red Drum	42,364	43,644	63,662
2018	11	Red Drum	9,629	14,318	27,643 *
2018	12	Red Drum	1,129	3,428	2,197 *
Fishing Year (Sept 1, 2018 - Aug 31, 2019) Landings			**64,271**		

*partial trip ticket landings only
***landings are confidential

Year	Month	Species	Pounds	Dealers	Trips	Average (2007-2009)	
2015	1	SOUTHERN FLOUNDER	1,984	30	237	7,713	
2015	2	SOUTHERN FLOUNDER	495	21	93	4,617	
2015	3	SOUTHERN FLOUNDER	10,750	62	768	23,512	
2015	4	SOUTHERN FLOUNDER	20,812	88	1,072	68,389	
2015	5	SOUTHERN FLOUNDER	42,424	117	1,279	122,514	
2015	6	SOUTHERN FLOUNDER	53,835	116	1,481	154,090	
2015	7	SOUTHERN FLOUNDER	42,806	106	1,144	170,387	
2015	8	SOUTHERN FLOUNDER	43,900	111	1,152	201,862	
2015	9	SOUTHERN FLOUNDER	255,067	122	2,335	396,301	
2015	10	SOUTHERN FLOUNDER	429,234	127	2,554	781,717	
2015	11	SOUTHERN FLOUNDER	301,489	90	1,755	392,150	
2015	12	SOUTHERN FLOUNDER	89	7	10	37,303	
2016	1	SOUTHERN FLOUNDER	2,625	33	264	7,713	
2016	2	SOUTHERN FLOUNDER	1,643	31	291	4,617	
2016	3	SOUTHERN FLOUNDER	9,183	58	914	23,512	
2016	4	SOUTHERN FLOUNDER	10,558	72	628	68,389	
2016	5	SOUTHERN FLOUNDER	24,522	90	821	122,514	
2016	6	SOUTHERN FLOUNDER	44,952	100	1,242	154,090	
2016	7	SOUTHERN FLOUNDER	43,574	102	1,132	170,387	
2016	8	SOUTHERN FLOUNDER	53,057	106	1,409	201,862	
2016	9	SOUTHERN FLOUNDER	245,870	131	3,004	396,301	
2016	10	SOUTHERN FLOUNDER	279,618	117	2,161	781,717	
2016	11	SOUTHERN FLOUNDER	182,148	102	1,465	392,150	
2016	12	SOUTHERN FLOUNDER	14	5	5	37,303	
2017	1	SOUTHERN FLOUNDER	1,677	38	122	7,713	
2017	2	SOUTHERN FLOUNDER	2,758	55	215	4,617	
2017	3	SOUTHERN FLOUNDER	8,254	67	874	23,512	
2017	4	SOUTHERN FLOUNDER	9,591	83	787	68,389	
2017	5	SOUTHERN FLOUNDER	33,105	105	1,121	122,514	
2017	6	SOUTHERN FLOUNDER	74,785	115	1,904	154,090	
2017	7	SOUTHERN FLOUNDER	74,879	108	1,755	170,387	
2017	8	SOUTHERN FLOUNDER	102,751	116	2,364	201,862	
2017	9	SOUTHERN FLOUNDER	235,915	128	2,849	396,301	
2017	10	SOUTHERN FLOUNDER	548,740	142	3,971	781,717	
2017	11	SOUTHERN FLOUNDER	301,670	123	1,993	392,150	
2017	12	SOUTHERN FLOUNDER	166	7	8	37,303	
2018	1	SOUTHERN FLOUNDER	610	14	43	7,713	
2018	2	SOUTHERN FLOUNDER	1,833	34	154	4,617	
2018	3	SOUTHERN FLOUNDER	2,771	42	384	23,512	
2018	4	SOUTHERN FLOUNDER	7,973	72	760	68,389	
2018	5	SOUTHERN FLOUNDER	18,268	89	947	122,514	
2018	6	SOUTHERN FLOUNDER	42,415	105	1,399	154,090	
2018	7	SOUTHERN FLOUNDER	55,641	113	1,461	170,387	
2018	8	SOUTHERN FLOUNDER	70,704	119	1,880	201,862	
2018	9	SOUTHERN FLOUNDER	108,791	114	1,771	396,301	
2018	10	SOUTHERN FLOUNDER	355,066	103	2,992	781,717	
2018	11	SOUTHERN FLOUNDER	217,874	71	1,259	392,150	*
2018	12	SOUTHERN FLOUNDER	39	3	3	37,303	*

*2018 data are preliminary and only complete through October.

***data are confidential

ROY COOPER
Governor
MICHAEL S. REGAN
Secretary
STEPHEN W. MURPHEY
Director

February 6, 2019

MEMORANDUM

TO: Marine Fisheries Commission

FROM: Kathy Rawls, Fisheries Management Section Chief

SUBJECT: Observer Program Update January through November 2018

Issue
This memo provides the Marine Fisheries Commission summary from the division's Observer Program from January through November 2018.

Action Needed
For informational purposes only, **no action is needed at this time.**

Observer Program Overview
Tables 1 – 4, that follow, summarize the division's Observer Program coverage and protected species interactions* from January through November 2018. These tables provide the number of trips, observed trips, observer coverage and protected species interactions for anchored large and small mesh gill nets by month and management unit. Please note that observer coverage is based on the average number of trips from previous years' finalized data, because 2018 trip data are preliminary.

A total of 12 sea turtle interactions were observed in large mesh gill nets and zero sea turtle interactions were observed in small mesh gill nets from January through November 2018. No sea turtle interactions were self-reported during this timeframe.

A total of 22 (20 alive and two dead) Atlantic sturgeon interactions were observed in large mesh gill nets and two live Atlantic sturgeon were observed in small mesh gill nets from January through November 2018, with most of the interactions occurring in March and in Management Unit A. Two Atlantic sturgeon interactions were self-reported by gill net fisherman during this timeframe.

Management Unit Gill Net Regulation Changes
Gill net regulation changes as well as openings and closings by management unit for January through November 2018 are included in Table 5.

***Definition:** **Incidental Take Permit Interaction -** when a protected species is caught or otherwise comes in contact with a gill net.

Table 1. Preliminary data collected for large mesh gill nets by month and management unit through the NCDMF Observer Program through November 2018.

		Trips		Observer Large Mesh				Observed Takes By Species								
								Kemp's		Green		Loggerhead		Unknown	A.Sturgeon	
Month	Unit	Estimated [1]	Actual [2]	AP Attempts [3]	Trips	Yards	Coverage [4]	Live	Dead	Live	Dead	Live	Dead	Live	Live	Dead
January	A	248	192	8	15	10,260	6.1									
	B	28	2	14	0	0	0.0									
	C	7	0	5	1	50	13.9									
	D1	0	0	0	0	0	0.0									
	D2	0	0	1	0	0	0.0									
	E	6	5	35	0	0	0.0									
February	A	433	254	29	25	12,490	5.8								**1**	
	B	44	7	21	0	0	0.0									
	C	77	38	21	16	12,180	20.8								**1**	
	D1	0	0	0	0	0	0.0									
	D2	2	2	6	1	100	50.0									
	E	18	15	41	0	0	0.0									
March	A	1,001	467	24	90	41,640	9.0								**9**	**1**
	B	48	48	17	1	600	2.1									
	C	680	422	11	29	18,610	4.3									
	D1	0	0	4	0	0	0.0									
	D2	6	5	2	3	1,100	50.0									
	E	52	25	52	2	180	3.8									
April	A	774	650	38	57	24,655	7.4								**2**	
	B	104	141	16	4	1,700	3.9									
	C	190	348	9	13	5,950	6.8									
	D1	1	0	1	0	0	0.0									
	D2	22	5	7	4	2,700	18.3									
	E	77	83	39	14	6,330	18.1									
May	A	250	84	56	7	1,405	2.8								**1**	
	B	193	138	24	6	3,975	3.1	**2**	**1**	**1**						
	C	107	105	27	17	11,165	15.9									
	D1	5	0	2	0	0	0.0									
	D2	43	28	11	1	500	2.3									
	E	122	206	50	28	11,020	23.0			**2**						
June	A	375	170	45	11	6,530	2.9									
	B	224	21	23	0	0	0.0									
	C	193	209	24	20	10,270	10.4									
	D1	0	1	3	0	0	0.0									
	D2	38	66	12	6	1,800	15.8									
	E	170	270	35	25	6,900	14.7									
July	A	297	147	48	10	5,090	3.4									
	B	257	9	21	1	100	0.4									
	C	203	243	22	19	14,570	9.4									
	D1	0	0	3	0	0	0.0									
	D2	29	102	7	3	1,600	10.3									
	E	135	255	36	31	11,700	23.0	**2**								
August	A	497	306	43	34	18,700	6.8									
	B	196	28	36	0	0	0.0									
	C	202	220	16	34	27,790	16.8									
	D1	0	0	6	0	0	0.0									
	D2	72	166	3	8	3,100	11.1									
	E	166	390	46	59	19,170	35.5									
September	A	1,126	623	17	32	42,020	2.8									
	B	298	212	10	9	6,580	3.0									
	C	461	155	15	9	4,220	2.0									
	D1	0	0	1	0	0	0.0									
	D2	119	75	3	4	1,900	3.4									
	E	156	204	21	12	3,825	7.7									
October	A	840	731	29	83	70,480	9.9	**1**		**3**					**3**	
	B	764	652	7	59	33,370	7.7									
	C	269	282	25	22	13,400	8.2									
	D1	18	0	1	0	0	0.0									
	D2	176	193	0	14	3,900	8.0									
	E	247	292	39	25	8,600	10.1								**1**	
November	A	670	407	46	16	12,220	2.4									
	B	189	90	13	8	4,275	4.2								**2**	**1**
	C	73	56	17	6	1,900	8.2									
	D1	8	0	7	0	0	0.0									
	D2	75	45	1	7	3,800	9.4									
	E	150	115	50	13	4,400	8.7									
Total		13,232	10,005	1,302	914	508,820	6.9	5	1	6	0	0	0	0	20	2

[1] Finalized trip ticket data averaged from 2013-2017

[2] Preliminary trip ticket data for 2018

[3] Alternative Platform trips where no fishing activity was found

[4] Based on estimated trips and observer large mesh trips

Table 2. Preliminary data collected for large mesh gill nets by month through the NCDMF Observer Program through November 2018.

							Observed Takes By Species								
	Trips		Observer Large Mesh				Kemp's		Green		Loggerhead		Unknown	A. Sturgeon	
Month	Estimated [1]	Actual [2]	AP Attempts [3]	Trips	Yards	Coverage [4]	Live	Dead	Live	Dead	Live	Dead	Live	Live	Dead
January	289	199	63	16	10,310	5.5									
February	574	316	118	42	24,770	7.3								**2**	
March	1,787	967	110	125	62,130	7.0								**9**	**1**
April	1,168	1,227	110	92	41,335	7.9								**2**	
May	720	561	170	59	28,065	8.2	**2**	**1**	**3**					**1**	
June	999	736	142	62	25,500	6.2									
July	922	756	137	64	33,060	6.9	**2**								
August	1,134	1,112	150	135	68,760	11.9									
September	2,160	1,269	67	66	58,545	3.1									
October	2,314	2,152	101	203	129,750	8.8	**1**		**3**					**4**	
November	1,165	713	134	50	26,595	4.3								**2**	**1**
Total	13,232	10,008	1,302	914	508,820	6.9	5	1	6	0	0	0	0	20	2

[1] Finalized trip ticket data averaged from 2013-2017

[2] Preliminary trip ticket data for 2018

[3] Alternative Platform trips where no fishing activity was found

[4] Based on estimated trips and observer large mesh trips

Table 3. Preliminary data collected for small mesh gill nets by month and management unit through the NCDMF Observer Program through November 2018.

		Trips		Observer Small Mesh			Observed Takes By Species								
							Kemp's		Green		Loggerhead		Unknown	A. Sturgeon	
Month	Unit	Estimated [1]	Actual [2]	Trips	Yards	Coverage [3]	Live	Dead	Live	Dead	Live	Dead	Live	Live	Dead
January	A	385	153	1	150	0.3									
	B	178	58	1	300	0.6									
	C	63	21	4	1,000	6.3									
	D1	1	0	0	0	0.0									
	D2	20	1	5	900	24.8									
	E	26	4	1	800	3.9									
February	A	479	265	12	3,700	2.5									
	B	153	235	1	700	0.7									
	C	83	152	8	3,130	9.6									
	D1	1	1	0	0	0.0									
	D2	11	2	3	400	27.8									
	E	16	4	1	300	6.4									
March	A	521	225	3	750	0.6									
	B	316	157	6	2,080	1.9									
	C	111	143	3	1,000	2.7									
	D1	7	1	0	0	0.0									
	D2	4	2	0	0	0.0									
	E	23	7	1	600	4.4									
April	A	343	301	6	2000	1.7									
	B	700	661	18	8610	2.6									
	C	61	71	1	220	1.6									
	D1	24	35	3	1200	12.6									
	D2	15	4	0	0	0.0									
	E	61	37	1	255	1.6									
May	A	172	115	2	500	1.2									
	B	360	386	5	1050	1.4									
	C	70	12	1	800	1.4									
	D1	6	10	2	825	32.3									
	D2	20	14	0	0	0.0									
	E	92	45	0	0	0.0									
June	A	105	111	0	0	0.0									
	B	303	246	0	0	0.0									
	C	103	18	0	0	0.0									
	D1	2	2	0	0	0.0									
	D2	12	10	0	0	0.0									
	E	78	83	0	0	0.0									
July	A	73	88	1	50	1.4									
	B	309	185	0	0	0.0									
	C	83	22	0	0	0.0									
	D1	4	0	0	0	0.0									
	D2	10	14	0	0	0.0									
	E	78	68	1	250	1.3									
August	A	74	167	1	700	1.4									
	B	361	246	2	300	0.6									
	C	90	23	0	0	0.0									
	D1	4	1	0	0	0.0									
	D2	30	10	1	200	3.4									
	E	87	132	0	0	0.0									
September	A	94	85	0	0	0.0									
	B	307	126	0	0	0.0									
	C	72	16	1	100	1.4									
	D1	11	4	0	0	0.0									
	D2	52	6	0	0	0.0									
	E	106	52	0	0	0.0									
October	A	128	59	1	700	0.8								**2**	
	B	439	282	0	0	0.0									
	C	60	25	1	800	1.7									
	D1	34	18	0	0	0.0									
	D2	114	30	0	0	0.0									
	E	229	96	0	0	0.0									
November	A	145	40	4	1600	2.8									
	B	241	137	11	4700	4.6									
	C	89	8	6	3000	6.7									
	D1	11	10	0	0	0.0									
	D2	76	15	7	1300	9.2									
	E	196	28	3	430	1.5									
Total		8,531	5,585	129	45,400	1.5	0	0	0	0	0	0	0	2	0

[1] Finalized trip ticket data averaged from 2013-2017

[2] Preliminary trip ticket data for 2018

[3] Based on estimated trips and observer small mesh trips

Table 4. Preliminary data collected for small mesh gill nets by month through the NCDMF Observer Program through November 2018.

						Observed Takes By Species								
	Trips		Observer Small Mesh			Kemp's		Green		Loggerhead		Unknown	A. Sturgeon	
Month	Estimated [1]	Actual [2]	Trips	Yards	Coverage [3]	Live	Dead	Live	Dead	Live	Dead	Live	Live	Dead
January	673	238	12	3,150	1.8									
February	743	659	25	8,230	3.4									
March	982	535	13	4,430	1.3									
April	1,205	1,109	29	12,285	2.4									
May	719	582	10	3,175	1.4									
June	603	470	0	0	0.0									
July	557	377	2	300	0.4									
August	646	579	4	1,200	0.6									
September	643	289	1	100	0.2									
October	1,003	512	2	1,500	0.2								**2**	
November	758	238	31	11,030	4.1									
Total	8,532	5,588	129	45,400	1.5	0	0	0	0	0	0	0	2	0

[1] Finalized trip ticket data averaged from 2013-2017

[2] Preliminary trip ticket data for 2018

[3] Based on estimated trips and observer small mesh trips

Table 5. Gill net regulation changes that occurred from January to November 2018 in accordance with the Sea Turtle and Atlantic Sturgeon Incidental Take Permits.

Date	Description of Regulation Change (Proclomation referenced)
2018 January 1	In Management Unit A, it makes it unlawful to use gill nets with a stretched mesh length *other than 3 ¼ inches, or from 5 ½ inches through 6 ½ inches*, EXCEPT IN THE AREAS DESCRIBED IN SECTION IV. It also maintains large mesh gill net closures and vertical height restrictions for all anchored gill net sets. This action was taken to minimize interactions in accordance with the Atlantic Sturgeon Incidental Take Permit. (M-24-2017)
2018 February 15	This proclamation implements gear exemptions for portions of the Internal Coastal Waters south of Management Unit A to allow fishermen to set gill nets for the shad fishery (See Section III.). It also opens the remaining portions of Management Unit B to the use of gill nets with a stretched mesh length of 4 inches through 6 ½ inches (except as described in Section III.) in accordance with the Sea Turtle Incidental Take Permit. (M-1-2018)
2018 March 3	Opens all of Management Unit A to the use of gill nets and allows gill net configurations for harvesting American shad by removing vertical height restrictions for up to 1,000 yards of gill net with stretched mesh lengths of 5 ¼ through 6 ½ inches. This proclamation also implements additional gill net restrictions for Management Subunit A-South of US-64-BYP/US-64, in accordance with the Sea Turtle and Atlantic Sturgeon ITPs. (M-2-2018)
2018 March 25	Removes the use of gill nets configured for harvesting American shad by implementing vertical height restrictions for all gill nets. This proclamation also closes a portion of the western Albemarle Sound to all gill nets with stretched mesh lengths of 5 ½ through 6 ½ inches, and maintains additional gill net restrictions in accordance with the Sea Turtle and Atlantic Sturgeon ITPs. (M-3-2018)
2018 May 3	Implements small mesh gill net attendance requirements in Management Unit A and implements additional gill net restrictions in accordance with the Sea Turtle ITP. This proclamation also maintains a closure in a portion of the western Albemarle Sound to all gill nets with stretched mesh lengths of 5 ½ through 6 ½ inches. (M-5-2018)
2018 May 18	This proclamation closes Management Unit B to gill nets with a stretched mesh length of 4 inches through 6 ½ inches in accordance with the Sea Turtle ITP and reduces the maximum stretched mesh length for run-around, strike, drift, drop and trammel gill nets to 5 inches. (M-7-2018)
2018 September 1	This proclamation opens a previously closed area in the western part of Management Unit A to gill nets with stretched mesh lengths of 5 ½ inches through 6 ½ inches in accordance with the Sea Turtle ITP. It maintains small mesh gill net attendance requirements in Management Unit A. (M-8-2018)
2018 September 3	This proclamation opens Management Unit B Subunit MGNRA to the use of gill nets with a stretched mesh length of 4 inches through 6 ½ inches for the new ITP year (September 1, 2018 through August 31, 2019) in accordance with the Sea Turtle ITP. This proclamation maintains attendance requirements for gill nets with a stretched mesh length less than 4 inches in Management Subunit B. 1. It maintains openings for Management Units C, D2 and portions of Management Unit E (except those described in Section II.) to the use of gill nets with a stretched mesh length of 4 inches through 6 ½ inches. This proclamation also maintains the closure of Management Unit D1 to the use of gill nets with a stretched mesh length of 4 inches through 6 ½ inches. (M-9-2018)
2018 October 1	This proclamation opens Management Unit B Subunits SGNRA 1-4, and CGNRA to the use of gill nets with a stretched mesh length of 4 inches through 6 ½ inches for the new ITP year (September 1, 2018 through August 31, 2019) in accordance with the Sea Turtle ITP. (M-10-2018)
2018 November 24	This proclamation closes a portion of the lower Chowan River and western Albemarle Sound to all gill nets with stretched mesh lengths of 5 ½ through 6 ½ inches due to dead sturgeon takes nearing the authorized amount for Management Unit A, and maintains additional gill net restrictions in accordance with the Sea Turtle and Atlantic Sturgeon ITPs. (M-13-2018)
2018 December 1	This proclamation closes the Albemarle Sound proper to the use of gill nets with a stretched mesh length of 5 ½ inches through 6 ½ inches, limits large mesh gill net length to 1,000 yards in open areas, and maintains nets must be set to fish the bottom of the water column and not to exceed a vertical height of 48 inches. Anchored small mesh gill nets (gill nets with a stretched mesh of 3 ¾ inches and smaller) may be unattended but must be set to fish the bottom of the water column and not to exceed a vertical height of 48 inches. This action is being taken due to low observer coverage and approaching the take limit of dead Atlantic sturgeon. (M-14-2018)

ROY COOPER
Governor

MICHAEL S. REGAN
Secretary

STEPHEN W. MURPHEY
Director

February 6, 2019

MEMORANDUM

TO: Marine Fisheries Commission

FROM: Kathy Rawls, Fisheries Management Section Chief

SUBJECT: Temporary Rule Suspension

Issue
In accordance with the North Carolina Division of Marine Fisheries Resource Management Policy Number 2014-2, Temporary Rule Suspension, the North Carolina Marine Fisheries Commission will vote on any new rule suspensions that have occurred since the last meeting of the commission.

Findings
No new rule suspensions have occurred since the November 2018 meeting.

Action Needed
For informational purposes only, **no action is needed at this time.**

Overview
In accordance with policy, the division will report current rule suspensions previously approved by the commission as non-action, items. The current rule suspensions previously approved by the commission are as follows:

- Continued suspension of North Carolina Marine Fisheries Commission Rule 15A NCAC 03M .0516 Cobia, for an indefinite period of time. This continued suspension allows the division to manage the commercial and recreational cobia fisheries in accordance with management actions taken by the commission and in accordance with Framework Amendment 4 to the federal Coastal Migratory Pelagics Fishery Management Plan. This suspension was continued in Proclamation FF-57-2018.

- Continued suspension of portions of North Carolina Marine Fisheries Commission Rule 15A NCAC 03J .0301 Pots, for an indefinite period of time. This continued suspension allows the division to implement the crab pot escape ring requirements adopted by the commission in the May 2016 Revision to Amendment 2 of the North Carolina Blue Crab

Fishery Management Plan. This suspension was effective January 15, 2017, implemented in Proclamation M-11-2016.

- Continued suspension of portions of North Carolina Marine Fisheries Commission Rule 15A NCAC 03L .0201 Crab Harvest Restrictions, and portions of 03L .203 Crab Dredging, for an indefinite period of time. This continued suspension allows the division to implement the blue crab harvest restrictions adopted by the commission in the May 2016 Revision to Amendment 2 of the North Carolina Blue Crab Fishery Management Plan. These suspensions were implemented in Proclamation M-11-2016.

- Continued suspension of portions of North Carolina Marine Fisheries Commission Rule 15A NCAC 03J .0501 Definitions and Standards for Pound Nets and Pound Net Sets, for an indefinite period of time. Continued suspension of portions of this rule allows the division to increase the minimum mesh size of escape panels for flounder pound nets in accordance with Supplement A to Amendment 1 of the North Carolina Southern Flounder Fishery Management Plan. This suspension was implemented in Proclamation M-34-2015.

- Continued suspension of portions of North Carolina Marine Fisheries Commission Rule 15A NCAC 03M .0519 Shad and 03Q .0107 Special Regulations: Joint Waters, for an indefinite period of time. Continued suspension of portions of these rules allows the division to change the season and creel limit for American shad under the management framework of the North Carolina American Shad Sustainable Fishery Plan. These suspensions were continued in Proclamation FF-56-2018 (REVISED).

ROY COOPER
Governor
MICHAEL S. REGAN
Secretary
STEPHEN W. MURPHEY
Director

Feb. 6, 2019

MEMORANDUM

TO: N.C. Marine Fisheries Commission

FROM: Tracey Bauer, Spotted Seatrout Lead

SUBJECT: January 2018 Spotted Seatrout Cold Stun Report

Issue
At its February 2018 business meeting, the Marine Fisheries Commission was provided a brief overview of the cold stun event that occurred in January 2018 and was informed that a more comprehensive report on the cold stun impacts to the spotted seatrout stock* would be provided when complete. The report is complete and available in the briefing book.

Findings
- Estimated spotted seatrout natural mortality* during the 2017/2018 winter was high, consistent with previously published cold stun natural mortality estimates.
- Analysis of water temperature data indicates that conditions were conducive to spotted seatrout cold stuns along most of coastal North Carolina; 79 percent of the division's water temperature monitoring stations met triggers based on spotted seatrout cold temperature tolerance.
- Analysis of division independent sampling data indicates spotted seatrout recruitment* in 2018 was above average.

Action Needed
For informational purposes only, **no action is needed at this time.**

Overview
A significant cold stun event occurred in January 2018 due to prolonged cold temperatures and two winter storms. Based on early confirmed reports of cold stunned spotted seatrout and data from the division's water temperature loggers, this cold stun event met the conditions established in the division's Guidelines for Adaptive Management for Cold Stun Closures, indicating a need for a closure. The director issued a proclamation on Jan. 3, 2018 closing the spotted seatrout fishery effective 3 p.m. on Jan. 5 until June 15, 2018. This action was taken in accordance with the management strategy adopted in the 2012 Spotted Seatrout Fishery Management Plan.

At its February 2018 business meeting, the commission was provided a brief overview of the cold stun event and informed that a more comprehensive report would be provided when complete. The report is now available and can be found in the commissioners' briefing book. The report contains estimates of spotted seatrout natural mortality* before, during, and after the cold stun event, an estimation of the geographical extent of the cold stun event in North Carolina using water temperature data, and an updated spotted seatrout juvenile abundance index* to provide information on post-cold stun spotted seatrout recruitment*. The report uses a quantitative approach to examine the impact the January 2018 cold stun event had on the North Carolina spotted seatrout stock. Data analyzed in this report will be considered in the development of the new model to assess the spotted seatrout stock, which is scheduled to begin in 2019.

*Definitions

Stock – A group of fish of the same species in a given area. Unlike a fish population, a stock is defined as much by management concerns (jurisdictional boundaries or harvesting locations) as by biology.
Natural Mortality – A measurement of the rate of removal of fish from a population from natural causes.
Recruitment – The number of spotted seatrout that survive to the juvenile stage.
Juvenile Abundance Index – A measure of abundance of juveniles in a fish population, which may serve as an indication of reproductive success. This does not measure the actual number of fish, but shows changes in juvenile abundance over time.

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January 2018 Spotted Seatrout Cold Stun

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ABSTRACT

Following a winter storm and extreme cold in January 2018, the division received reports of stunned spotted seatrout throughout North Carolina. In addition to reports of stunned fish, preliminary water temperature data met triggers established in Guidelines for Adaptive Management of Spotted Seatrout Closures, prompting the director issue a proclamation to the close the spotted seatrout fishery until June 15, 2018. The division has prepared a final, comprehensive assessment of the cold stun event. Natural mortality of spotted seatrout was estimated before, during, and after the January 2018 cold stun event to quantify the affects the cold stun had on the North Carolina spotted seatrout population. In addition, water temperature data was analyzed to estimate the geographical extent of the cold stun event. Lastly, a juvenile abundance index for spotted seatrout was calculated using the division's Program 120 Estuarine Trawl Survey, providing estimates of post-cold stun recruitment. Estimated spotted seatrout natural mortality during the winter of 2017/2018 was high and was consistent with previously published spotted seatrout cold stun natural mortality estimates. In addition, the severity of the January 2018 cold stun event on the spotted seatrout population was supported by water temperature data. Seventy-nine percent of stations coastwide met at least one of the water temperature triggers. Lastly, the spotted seatrout juvenile abundance index in 2018 was above average, indicating increased recruitment. With the spotted seatrout benchmark stock assessment scheduled to begin this year (2019), all data included in this report will be considered in the development of the new model to assess the spotted seatrout stock.

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1 INTRODUCTION

Cold stun events have a major impact on spotted seatrout population dynamics, contributing to periodic declines in population abundance (NCDMF 2012; Merriner 1980; Ellis et al. 2018). Cold stun events occur when prolonged cold temperatures or snow and ice melt cause water temperatures to drop below the minimum temperature spotted seatrout can withstand, causing detrimental physiological effects, such as a loss of equilibrium and immobilization. If spotted seatrout are unable to move to warmer water (i.e., a thermal refuge), then mortalities can occur. In North Carolina, spotted seatrout cold stun events have occurred recently in the winters of 2009, 2010, 2011, 2014, 2015, and 2018 (NCDMF 2012, 2016).

Mortality due to cold stuns is recognized in the 2012 Spotted Seatrout Fishery Management Plan (FMP) as a factor impacting the abundance of spotted seatrout in North Carolina (NCDMF 2012). At their February 2012 business meeting, the Marine Fisheries Commission (MFC) directed the division to remain status quo regarding spotted seatrout management, with the assumption that in the event of a "catastrophic" cold stun the director would use proclamation authority to enact a temporary closure (NCDMF 2012). The objective of a spotted seatrout fishery closure after a cold stun event is to allow surviving fish an opportunity to spawn during their spring spawning season, potentially increasing recruitment the following year.

Division staff, with input from the MFC, developed adaptive management guidelines for spotted seatrout cold stun closures which stated that if verifiable cold stunned fish were found in at least four counties, then the fishery would close until June 15 at the director's discretion. These original adaptive management guidelines were used to evaluate three cold stuns from 2011-2015. The division determined that the guidelines were met in 2011 and 2014 (Proclamation FF-7-2011; FF-30-2011; FF-9-2014), closing the fishery until June 15 in both years. In the winter of 2015, reports from the public of cold stunned spotted seatrout were investigated by the division. Many reports could not be verified or were inconsistent with what was observed by the division. Consequently, the division determined that the four-county threshold was not met, and the director chose to not close the fishery. The public disagreed with the division's determination, citing the subjectivity involved in making the decision. With a goal to develop more objective and quantifiable guidelines, the division reexamined its adaptive management strategy for spotted seatrout cold stun closures.

Beginning in 2016, the division enacted revised adaptive management guidelines which, in addition to taking into consideration the magnitude and scope of the kill, includes water temperature triggers of 5 °C (41 °F) at eight consecutive days and/or 3 °C (37.4 °F) for a consecutive 24-hour period (NCDMF 2016). If either of the triggers are met in at least two spotted seatrout management areas (Figure 1), then the director will use proclamation authority to close the spotted seatrout fishery until June 15. The triggers are based on the cold tolerance of North Carolina spotted seatrout; survival probabilities of spotted seatrout fall below 50% after eight days of prolonged exposure to 5 °C water temperatures or one day of prolonged exposure to 3 °C water temperatures (Ellis et al. 2017a). In the event of a potential cold stun event, the division determines if water temperatures have met the triggers by reviewing data from continuous water temperature logging devices located in cold stun prone areas throughout the state.

In late December 2017 and January 2018, North Carolina experienced a coastwide snow/ice and record cold event. Beginning on December 26, 2017, a strong Arctic cold front moved into North Carolina and remained in the area through January 8, 2018. From January 3-4, 2018, a major winter

storm affected an extensive area of North Carolina. Ice accumulation was up to 0.2 inch, and snowfall amounts ranged from about two inches at the coast up to eight inches inland. After the snow event, clear skies and calm winds led to very cold nights, near all-time record lows. The Newport/Morehead City National Weather Service recorded a record eight straight days of temperatures below 20 degrees. Later in the month, the combination of an Arctic cold front and low pressure developing off the Outer Banks led to snow on the evening of January 17, 2018 into the morning of January 18, 2018, making it the second major winter storm to impact North Carolina during January 2018.

Reports of cold stunned fish began shortly before the storm on January 2, 2018, with confirmed reports of cold stunned spotted seatrout in the White Oak River near Stella, North River (Carteret County), Gales Creek, and Hancock Creek, and unconfirmed reports ranging from mainland Dare County to Lockwood Folly River. Widespread observations of stunned spotted seatrout along the coast of North Carolina were reported by division staff and the public throughout January 2018. The northernmost confirmed stun occurred at Broad Creek at Wanchese Harbor. Reports of spotted seatrout mortality were confirmed in multiple locations along the Pamlico River (e.g., at Washington Park, at the Washington waterfront, along Whichards Beach, near the Highway 17 overpass and between Jack's Creek and the railroad trestle, South Creek, Bear Creek) and in the Pungo River. Spotted seatrout cold stuns were confirmed in the Neuse River and its tributaries at the mouth of Tranters Creek and Broad Creek at the mouth of the Neuse. Cold stuns were also confirmed in Bogue Sound, Spooners Creek, Queen Creek and further south to Pages and Topsail creeks and canals near Holden Beach. Reports from the public and division staff of stunned fish were noted until late January. Species other than spotted seatrout that were observed impacted by the snow/ice and record cold event included eastern oyster, red drum, southern flounder, sheepshead, black drum, and striped mullet. Counties with confirmed spotted seatrout cold stuns included Dare, Hyde, Beaufort, Pamlico, Craven, Carteret, Onslow, Pender, New Hanover, and Brunswick; cold stunned spotted seatrout were observed in all three spotted seatrout cold stun management areas.

In addition to the widespread confirmed and unconfirmed reports of cold stunned spotted seatrout, low water temperatures were recorded throughout North Carolina waters (Table 1). On January 3, water temperatures in Croatan Sound ranged from 1.3 °C to 6.9 °C. Water temperature readings taken from northern Beaufort and Hyde counties on January 3 ranged from -0.4 °C in Pungo Creek to 5.1°C in Scranton Creek. Temperature data downloaded on January 3 from North River and White Oak River near Stella showed that the 3 °C at 24-hour trigger had been met or that water temperatures had fallen below 2 °C multiple times with no observed deeper, warmer waters to act as a thermal refuge for the fish.

Based on early confirmed reports of cold stunned fish and water temperature data, the triggers were determined to be met in at least two of the spotted seatrout cold stun management areas, and the director issued a proclamation on January 3, 2018 to close the spotted seatrout fishery effective 3:00 p.m. Friday, January 5, 2018 until June 15, 2018.

The division provided a memo to the MFC at their February 2018 business meeting giving a brief overview of the cold stun event, and indicated a more comprehensive report would be provided when more data were collected on the spotted seatrout stock. At the November 2018 business meeting, the Commission was provided an additional memo giving an update on the status of the report.

Using data from the division's tagging program, natural mortality of spotted seatrout was estimated before, during, and after the January 2018 cold stun event to quantify the effects the prolonged cold had on the North Carolina spotted seatrout population. In addition, temperature data downloaded from the division's water temperature loggers was analyzed to estimate the geographical extent of the cold stun impacts on the stock. Lastly, the division's Program 120 Estuarine Trawl Survey spotted seatrout juvenile abundance index was updated, providing estimates of post-cold stun recruitment.

2 METHODS

Spotted Seatrout Natural Mortality

Data Preparation

Tag-return data were pulled from the NCDMF Biological Database (BDB) and transformed into a low reward matrix, a high reward matrix, and a double tagged matrix. All fish that were tagged within the selected time period (March 1, 2014 – December 31, 2018) were included (Table 2). Each of these matrices were used in the model (as described below) on a timestep basis, which included both the number of released and recaptured tags per timestep within each sector (commercial and recreational) and by catch type (e.g., harvest or discards). Prior to pulling data from the BDB all fishery independent recaptures, defined here as fish recaptured by NCDMF staff during routine or targeted sampling, or recaptures by other research-related sampling efforts (e.g., federal or university), were excluded from analysis. For ease of analysis commercial and recreational discards were merged into a single "discards" category within the matrices. Discards were merged because a majority of returned discards were from the recreational sector, with only 0.01% (1/94) from the commercial sector. There are currently no estimates of discards from the commercial sector.

Model Structure

An instantaneous rates tag-return model was used, that was parameterized, described, and equations the same as used in Ellis et al. (2018). The instantaneous rates model was run in a Bayesian framework in Just Another Gibbs Sampler (JAGS) software (Plummer 2003) called from R statistical software (R2Jags; R Core Team 2016). Instantaneous rates models aim to estimate fishing mortality (F), natural mortality (M), total mortality (Z), acute and chronic tag loss, and sector specific (e.g., commercial and recreational) reporting rates (λ), when previous information on discard mortality and initial tagging survival is known. The model allowed for both harvest and catch-and-release fisheries (termed here forward as "discard"), which is an added feature of this type of tag-return modeling.

The model was run on a 4-month timestep (j) (March/April/May/June, July/Aug/Sept/Oct, Nov/Dec/Jan/Feb), for a total of nine timesteps (March 2016–December 2018).

Model Priors

Uninformative uniform prior distributions were used for the following estimated parameters: λr (0, 1), λc (0, 1), and the natural logs of Frj (−10, 2), Fcj (−10, 2), Fdj (−10, 2), and Mj (−10, 2). The probability of tag retention immediately after tagging (ρ) was set at [uniform (0,1)], while chronic instantaneous tag loss (Ω) was assumed to equal a previously calculated estimate (A. Flowers, unpublished). Discard mortality rate was assumed equal to a previously calculated estimate (A. Flowers, unpublished) for the recreational fishery that was then averaged across

seasons (δ=10%). The tagging survival rate (s) were assumed equal to 100%, which was based on results of a pen study (NCDMF, unpublished). Finally, the reporting rate (λH) for high-reward tags was assumed to be 100%, which was a main assumption of this model.

Parameter Estimation

The first 15,000 of 30,000 samples from three Markov chains were excluded. The chains were then thinned by five to meet convergence criteria and to remove bias associated with initial parameter estimates. Convergence of the three Markov chains posterior distributions were assessed visually. All parameter estimates in this report are presented as posterior medians with 95% credible intervals (CrI).

Water Temperature Trigger Analysis

Onset HOBO Water Temp Pro v2 (U22-001) loggers were deployed throughout the coastal rivers and creeks of North Carolina beginning in October 2015. Logger deployment stations were chosen to be representative of the systems in each area and in areas prone to cold stuns (Table 1). In most locations, two loggers were deployed to gather surface and bottom temperature readings. However, one logger was deployed in locations where the shallow water depth made two loggers unnecessary.

HOBO loggers were either tied or attached using longline clips to a weighted line within a perforated 2-inch schedule 40 PVC pipe covered with anti-foul paint or clipped to a steel cable attached to a cement mooring with a marked float. Suspending the loggers within the PVC pipe minimized fouling and offered protection to the loggers while allowing for necessary water circulation to gather temperature readings. The PVC pipes were attached to existing Coast Guard maintained shoal/channel markers, dock pilings, trees, or bridge pilings using adjustable stainless-steel strapping and bungee cord. Loggers deployed on mooring lines were suspended one meter off the bottom or one meter below the surface using longline clips. Before deployment, loggers were programmed to gather temperature readings every 15 minutes.

Loggers were downloaded on a semi-annual basis or as time permitted at each office, and on a more frequent basis during and after a suspected cold stun. The software HOBOware version 3.7.5 (Onset Computer Corporation 2015) was used to download, view, and export the logger data to an Excel file format by each office. Anomalous temperature readings were removed by visual inspection of graphically represented data. If in anomalous data, air temperature data coincided with the recorded water temperatures and/or there were unusually large spikes in water temperature data, this data was deemed inaccurate and omitted (EPA 2014). Stations were analyzed as to whether they met the 5 °C for eight consecutive days and/or 3 °C for 24 consecutive hours triggers by visually inspecting the data. Water temperature triggers were considered met if water temperatures remained at or below 5 or 3 °C for the respective number of hours of each trigger. If there were surface and deep HOBO loggers at a station, only water temperature data from deep loggers were analyzed because 1) deeper depths were less likely to be exposed to air and/or ice and thus are more accurate; 2) as water temperatures drop spotted seatrout attempt to move to deeper and warmer water, but if deeper waters are meeting the trigger then that means there is less likely to be a thermal refuge in the body of water that the logger is located in.

Program 120 Juvenile Abundance Index

Program 120, the North Carolina Estuarine Trawl Survey, is a fisheries independent multispecies monitoring program that has provided a long-term database of annual juvenile recruitment for

economically important species since 1978. This survey samples a fixed set of 105 core stations with additional stations as needed. Spotted seatrout specific sampling started in 2004 at 27 additional stations located in Pamlico Sound, and the Pamlico, Pungo, and Bay rivers (Figure 2), which are sampled twice a year in June and July. Sampling is conducted using an otter trawl with a 3.2 m headrope, 6.4 mm mesh wings and body, and 3.2 mm mesh cod end. Tow duration is one minute, and all individuals collected are identified, sorted, and counted.

For analysis, Program 120 data were limited to the 27 spotted seatrout stations sampled in June and July from 2004-2018. Spotted seatrout less than 150 mm TL (all fish from 2004 to 2018) were assumed to be juvenile fish. A spotted seatrout juvenile abundance index (JAI) was calculated by year as an average of the number of fish collected per minute at each station. Since all tows are one minute, no reweighting was necessary.

3 RESULTS

Spotted Seatrout Natural Mortality

Triannual estimates of spotted seatrout natural mortality for the period of March 2016 through October 2018 ranged from a low of 0.002 (CrI=lower and upper bounds of the 95% credible interval) (CrI: 0.000, 0.120) in the summer of 2017 to a high of 1.595 (CrI: 0.482, 2.467) in the winter of 2017/2018 (Table 3; Figure 3). Spotted seatrout natural mortality estimates showed seasonality, with peaks in the winters of 2016/2017 and 2017/2018, and lows during summer and fall. A significantly higher rate of natural mortality was estimated in the winter of 2017/2018 compared to the winter of 2016/2017 (0.423; CrI: 0.000, 0.891).

Water Temperature Trigger Analysis

Water temperature data from the period of the cold stun (December 28, 2017 through January 28, 2018) was available from 43 stations throughout coastal North Carolina; water temperature data and triggers from stations selected to represent locations coastwide is shown in Figure 4. Thirty-four stations met at least one of the triggers (79%) (Table 1; Figures 5 and 6). Locations of stations that met at least one of the triggers spanned from North River (Currituck/Camden counties) to the New River (Onslow County). Thirty-three stations met the 5 °C trigger (Table 1; Figure 5) and 33 stations met the 3 °C trigger (Table 1; Figure 6). Slocum Creek Head met the 5 °C trigger but did not meet the 3 °C trigger. Spooners Creek met the 3 °C trigger but did not meet the 5 °C trigger. The nine stations that did not meet either trigger were located from South River south to the Cape Fear River. There appeared to be a transitional region for the cold stun event between tributaries of the Neuse River and tributaries of the New River, which included stations that did and did not meet water temperature triggers (Figures 5 and 6). No stations south of the New River met either trigger.

Program 120 Juvenile Abundance Index

The Program 120 spotted seatrout juvenile abundance index was variable, with no clear trend and peaks in 2006, 2008, 2012, 2013, and 2018 (Table 4; Figure 7). Juvenile abundance ranged from a low of 0.67 fish per tow in 2004 to a high of 4.15 fish per tow in 2008, and averaged 2.19 fish per tow from 2004-2017. The spotted seatrout juvenile abundance index in 2018 (2.89 fish per tow) was above the time-series average and above the five-year average (1.67 fish per tow).

4 DISCUSSION

Spotted Seatrout Natural Mortality

Cold stun events are relatively common in North Carolina coastal waters, occurring every several years, although the magnitude, extent, and consequent impact on spotted seatrout populations will differ (McEachron et al. 1994; NCDMF 2015; Ellis et al. 2017a; Ellis et al. 2018). While winter severity is strongly correlated to spotted seatrout natural mortality, quantifying the magnitude of mortality is difficult. A tag-return model was used to estimate an instantaneous rate of natural mortality during the period of the January 2018 cold stun event. The values of natural mortality presented in this report are not numbers of fish, but instead rates at which individual fish are lost from a population over a specific time interval, which can be used to compare to previous reported rates of natural mortality for spotted seatrout.

The high rate of spotted seatrout natural mortality in the winter of 2017/2018 (i.e., 1.59) estimated by the model was consistent with estimated natural mortality from previous cold stun events. Comparatively, Ellis et al. (2018) estimated North Carolina spotted seatrout mortality from 2008-2012, and found that their natural mortality estimates supported the occurrences of two cold stun events in the winters of 2009/2010 (i.e., 1.55) and 2010/2011 (i.e., 2.91) (Ellis et al. 2017a; Ellis et al. 2018). Therefore, while the rate of natural mortality from the winter of 2017/2018 was high and similar to the winter of 2009/2010, it was not as high as the natural mortality observed in the winter of 2010/2011. The results in this report provide additional insight into natural mortality rates during cold stun events, but the complete range of natural mortality for the North Carolina spotted seatrout stock is still unknown (Ellis et al. 2018). Continued tagging effort is needed through the division's multispecies tagging program to fully understand the effects of varying winter severity on spotted seatrout natural mortality.

Water Temperature Trigger Analysis

The implementation of the adaptive management framework for spotted seatrout cold stun closures (NCDMF 2016) has reduced uncertainty in the magnitude and geographical extent of a spotted seatrout cold stun event, allowing NCDMF to make objective management decisions. Based on this report's analysis of stations that met one or both water temperature triggers, the January 2018 cold stun event was clearly extensive, encompassing most of coastal North Carolina. Survival probabilities of spotted seatrout are estimated to fall below 50% after meeting either of the triggers (Ellis et al. 2017a); water temperatures fell below spotted seatrout's cold tolerance in many of North Carolina's creeks and bays for long enough to make spotted seatrout highly vulnerable to cold-related mortality. In nearly all creeks and bays north of New River that met the 3 °C trigger, the water remained at or below 3 °C for more than two days, which is low enough to cause 100% mortality of spotted seatrout. This water temperature analysis is largely consistent with statewide reports by the public and division of cold stunned spotted seatrout, especially the high numbers of dead spotted seatrout observed in the White Oak, Neuse, and Pamlico rivers and their tributaries.

Minor spotted seatrout cold stuns (approximately 1-5 dead spotted seatrout observed per location) were reported by the public and NCDMF in the southern region of the state where neither trigger was met, such as in Topsail Creek, Pages Creek, and canals near Holden Beach (respectively Pender, New Hanover, and Brunswick counties). Ellis et al. (2017a) reported survival rates of approximately 83% for spotted seatrout subjected to 10 days at 7 °C; thus, while not meeting the water temperature triggers, water temperatures were low enough for long enough to stun fish and cause some mortality. In addition, when water temperatures drop below 7 °C, spotted seatrout will attempt to either leave the area (i.e., emigrate) or move to deeper waters (i.e., a thermal refuge) (Ellis et al. 2017b). However, environmental conditions, such as tidal currents, may impede the fishes' ability to find thermal refuge or emigrate, making them more susceptible to becoming

stunned. Another explanation is that water temperatures may have abruptly fallen critically low for a short period of time, causing instantaneous loss of equilibrium and then mortality. During the period of the cold stun event, water temperatures at Pages Creek dropped below 2 °C four times between Jan. 4 and Jan. 8, 2018. Similarly, water temperatures at Dutchman Creek (Brunswick County), the southernmost station, fell below 2 °C once. For spotted seatrout, the minimum stressful but survivable water temperature over a very short duration is approximately 2-3 °C. Water temperatures below 2-3 °C, even for a short duration, will most likely be fatal (McDonald et al. 2010; Ellis et al. 2017a).

Only one report of cold stunned spotted seatrout was confirmed in the northern region of the state; however, all stations in this region met both triggers. The lack of observed stuns is most likely due to a difference in migration patterns and overwintering habits of spotted seatrout further north. At the northernmost extent of their range, spotted seatrout migrate out of estuaries in the fall and overwinter south along the coast (Dorval et al. 2005; Smith et al. 2008; Ellis 2014; Ellis et al. 2017b). If these spotted seatrout overwinter in the ocean as opposed to creeks and bays, they are not exposed to the rapid temperature declines associated with cold stun events, and therefore experience no related mortality. If these fish migrated to southern North Carolina estuaries (Ellis et al. 2017b), they too may have been affected by the cold stun there. However, for spotted seatrout that may have migrated south, their probability of survival was more likely greater than if they had remained in the northern regions of the state.

Program 120 Juvenile Abundance Index

After the January 2018 cold stun, harvest was closed until June 15, 2018 to allow the surviving population the opportunity to spawn in the spring. The Program 120 spotted seatrout JAI showed above average 2018 recruitment. Although we cannot definitively determine whether the closure explains the observed increase in recruitment, a harvest closure has been suggested to promote a quicker recovery of the population (McEachron et al. 1994).

5 CONCLUSIONS

The analysis of water temperature and tagging data, in addition to the reports of cold stunned fish, provides evidence of the January 2018 cold stun's extensive impacts on the spotted seatrout population. However, positive signs for the spotted seatrout stock can be seen in the above average 2018 recruitment.

Population dynamics of spotted seatrout in North Carolina are driven primarily by sources of natural mortality, such as cold stun events, which has high interannual variability (i.e., not all years have cold stun events so natural mortality will be very high some years and low others) (Ellis et al. 2018). The previous spotted seatrout stock assessment (NCDMF 2015) was unable to incorporate variable natural mortality estimates but recognized its importance to more accurately assess the spotted seatrout population. Consequently, development of a model that incorporated variable natural mortality estimates was added as a research recommendation to investigate during the next assessment. The next spotted seatrout benchmark stock assessment is scheduled to begin in 2019, and tag-return and water temperature data will be considered in the development of the model.

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7 TABLES

Table 1. A description of each HOBO temperature logger station that had data available during the time of the January 2018 cold stun event (Dec. 28, 2017 – Jan. 28, 2018), including the county the station is located in, the Division of Marine Fisheries office responsible for that station, the station water depth, and whether the station met the 5 °C and/or 3 °C triggers. Lastly, minimum, mean, and maximum water temperatures for the period of the cold stun event are given. EC=Elizabeth City Office, MAN=Manteo Office, WS=Washington Office, MC=Morehead City Office, WI=Wilmington Office.

Station Description	County	DMF Office	Depth (m)	Met 5 °C Trigger	Met 3 °C Trigger	Min Water Temp (°C)	Mean Water Temp (°C)	Max Water Temp (°C)
North River marker 135	Currituck	EC	2.6	Y	Y	-0.3	3.0	8.6
Little Alligator Old HWY 64 Bridge Alligator River	Tyrrell	EC	2.4	Y	Y	0.8	4.5	9.2
Little Alligator DOT Canal Alligator River	Tyrrell	EC	2.1	Y	Y	-0.2	4.4	9.5
Little Alligator River Rock Pt. Alligator River	Tyrrell	EC	0.9	Y	Y	0.4	4.8	11.1
Upper Second Creek Alligator River Mike Binkleys blind	Tyrrell	EC	0.9	Y	Y	-0.3	4.8	12.3
Lower Second Creek Alligator River	Tyrrell	EC	0.9	Y	Y	-0.3	4.2	11.2
Kitty Hawk Bay marker 6	Dare	MAN	2.4	Y	Y	-0.2	3.8	10.7
Peter Mashoes Creek 1	Dare	MAN	1.1	Y	Y	-0.5	3.3	9.5
Avon Basin	Dare	MAN	2.0	Y	Y	-3.0	4.1	20.3
Hatteras Slash Creek bridge	Dare	MAN	1.3	Y	Y	-1.3	4.4	17.0
Long Shoal Deep Creek bridge	Dare	MAN	3.4	Y	Y	-0.6	4.5	10.2
Long Shoal Deep Creek mouth	Dare	MAN	0.9	Y	Y	2.4	5.6	10.3
Swan Quarter Bay marker # (red light 10) - sign post	Hyde	WS	2.3	Y	Y	-0.7	4.9	10.9
Pungo River 264 Bridge Leechville - Stump	Beaufort	WS	2.2	Y	Y	0.5	4.7	10.8
Pungo Creek HWY 92 - piling	Beaufort	WS	2.1	Y	Y	0.1	4.3	9.8
Bath Creek - Old railroad piling	Beaufort	WS	2.4	Y	Y	-0.1	5.0	10.6
Blounts Creek SR1112 bridge	Beaufort	WS	2.4	Y	Y	0.2	4.5	9.9
South Creek (Pamlico) - Hwy 33 bridge	Beaufort	WS	1.8	Y	Y	-1.5	6.1	15.8
Bay River Green marker 9	Pamlico	WS	3.4	Y	Y	1.9	5.4	11.5
Oriental HWY 55/SR1308 bridge Neuse River	Pamlico	WS	3.4	Y	Y	1.7	5.5	12.2
Slocum mouth on VR2 station #NE315	Craven	MC	2.6	Y	Y	-0.6	5.4	13.1

Station Description	County	DMF Office	Depth (m)	Met 5 °C Trigger	Met 3 °C Trigger	Min Water Temp (°C)	Mean Water Temp (°C)	Max Water Temp (°C)
Tucker Creek split	Craven	MC	1.3	N	N	0.6	7.6	14.7
Slocum Creek head	Craven	MC	3.0	Y	N	1.8	6.7	16.0
Hancock Creek mid	Craven	MC	1.3	Y	Y	-3.1	6.5	20.2
Hancock Creek head	Craven	MC	4.8	N	N	4.8	8.0	12.9
North River Narrows	Carteret	MC	2.0	Y	Y	-1.4	5.5	15.1
Spooners Creek	Carteret	MC	1.6	N	Y	0.5	7.1	16.5
White Oak River Stella bridge	Onslow	MC	4.0	Y	Y	0.3	5.5	10.1
Pettiford Creek	Carteret	MC	2.3	Y	Y	-0.4	5.7	13.2
Jarrett Bay; Smyrna Creek	Carteret	MC	2.0	Y	Y	-1.2	6.1	18.7
Long Bay headwaters	Carteret	MC	1.5	Y	Y	0.1	6.0	16.6
South River mid	Carteret	MC	1.0	N	N	3.4	7.6	11.5
South River headwaters	Carteret	MC	2.5	Y	Y	0.9	6.1	16.3
Queens Creek	Carteret	MC	1.0	Y	Y	-0.5	5.8	13.4
New River 172 bridge	Onslow	WI	3.4	Y	Y	-1.0	5.6	11.2
New River Mill Creek boat ramp	Onslow	WI	1.5	N	N	0.0	5.2	16.0
New River North East Creek HWY 24 bridge	Onslow	WI	2.7	Y	Y	0.6	6.8	14.1
New River S Marine BLVD bridge	Onslow	WI	3.0	N	N	2.7	7.4	14.4
New River Southwest Creek	Onslow	WI	1.4	Y	Y	-0.1	5.0	11.1
Cape Fear River Dutchman Creek	Brunswick	WI	2.1	N	N	1.4	8.3	15.5
Pages Creek	New Hanover	WI	1.1	N	N	1.5	7.7	15.1
Sunny Point	Brunswick	WI	3.6	N	N	2.7	7.0	10.9
Mallory Creek	Brunswick	WI	2.1	N	N	2.3	6.9	11.3

Table 2. Total number of spotted seatrout used in the tag-return model that were released and recaptured each year for the period of this study (March 2016 – December 2018).

Year	Annual Time Period	Released	Recaptured
2016	Mar-Feb	1,203	96
2017	Mar-Feb	2,520	122
2018	Mar-Dec	1,095	14

Table 3. Summary of the triannual time step estimates of natural mortality (*M*) for spotted seatrout from March 2016 to October 2018. Presented estimates are the posterior medians and associated lower and upper bounds of the 95% credible interval (CrI).

Time Step	*M*	Lower CrI	Upper CrI
March 2016 - June 2016	0.061	0.000	0.868
July 2016 - October 2016	0.005	0.000	0.347
November 2016 - February 2017	0.423	0.000	0.891
March 2017 - June 2017	0.170	0.000	0.767
July 2017 - October 2017	0.002	0.000	0.120
November 2017 - February 2018	1.595	0.482	2.467
March 2018 - June 2018	0.005	0.000	0.735
July 2018 - October 2018	0.005	0.000	0.664

Table 4. Program 120 juvenile abundance index (JAI; average number of fish collected per tow) from 2004-2018, June and July combined, with number of samples (N) and standard error (SE).

Year	N	JAI	SE
2004	54	0.67	0.23
2005	54	2.80	0.69
2006	54	4.13	1.54
2007	54	2.59	0.81
2008	54	4.15	1.08
2009	54	1.09	0.29
2010	54	1.72	0.54
2011	54	1.11	0.31
2012	54	4.00	1.13
2013	54	3.54	0.91
2014	54	1.46	0.39
2015	54	1.81	0.55
2016	54	0.72	0.22
2017	54	0.80	0.25
2018	54	2.89	0.74

8 FIGURES

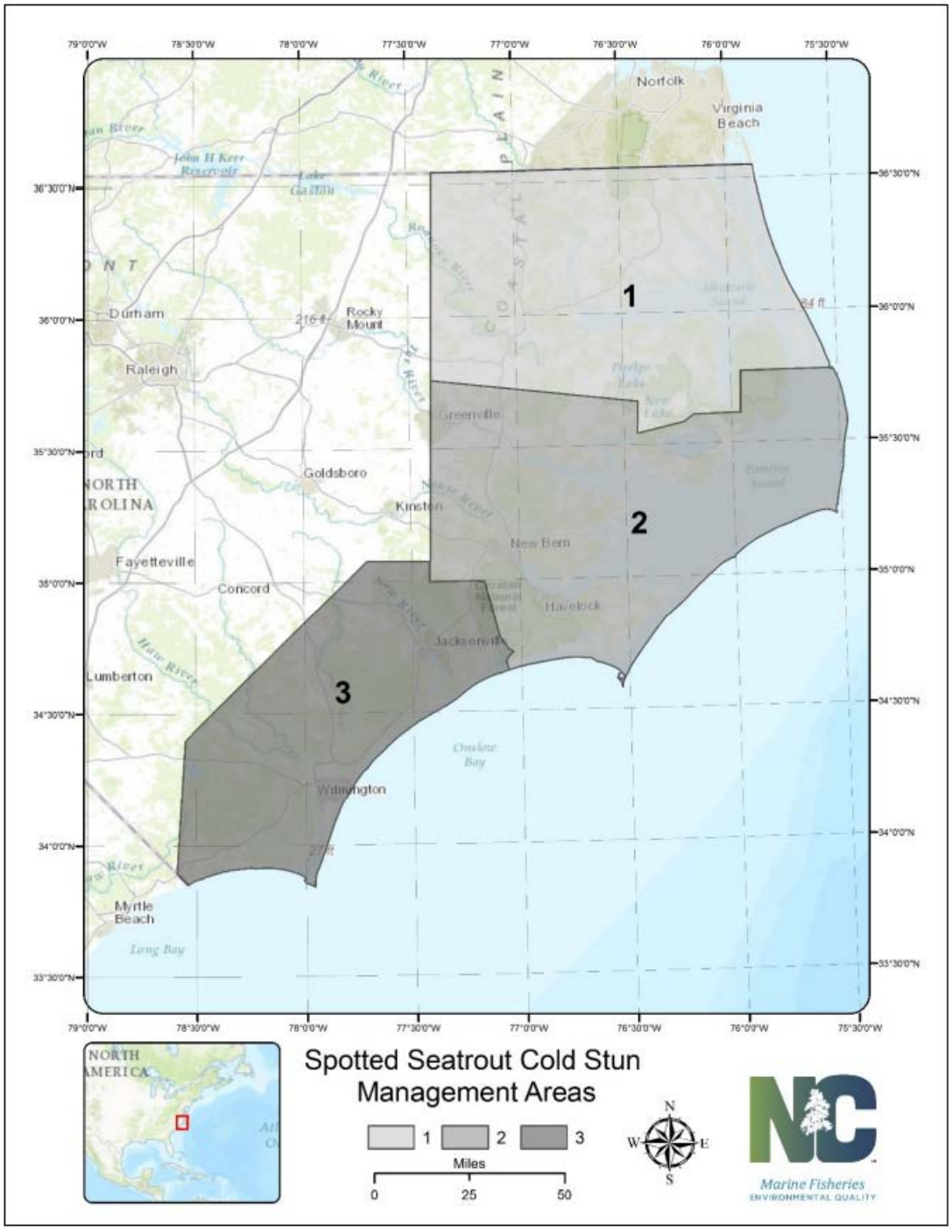

Figure 1. Spotted seatrout cold stun management areas

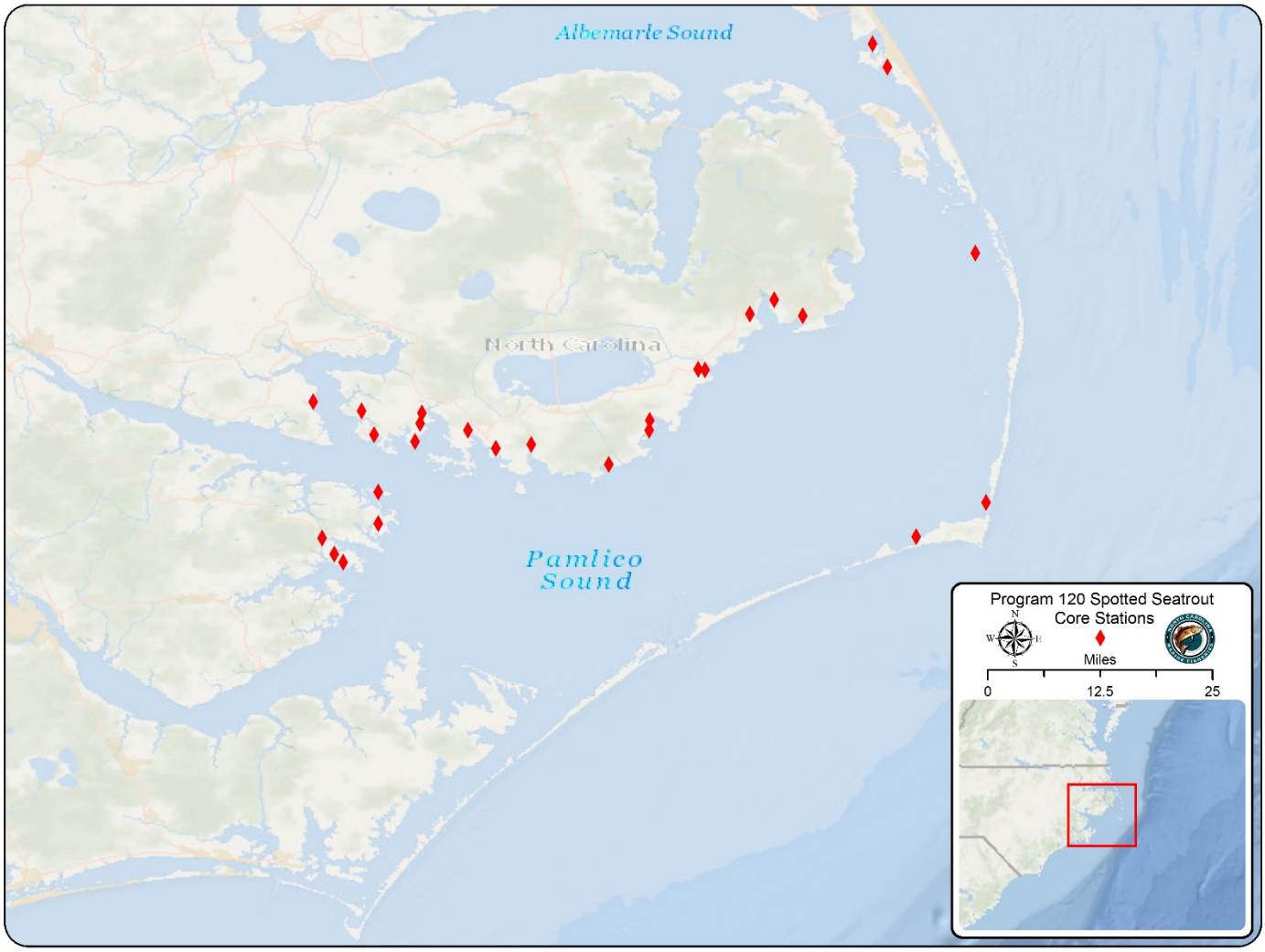

Figure 2. Program 120 Estuarine Trawl Survey spotted seatrout core stations that are sampled June and July, 2004-Present.

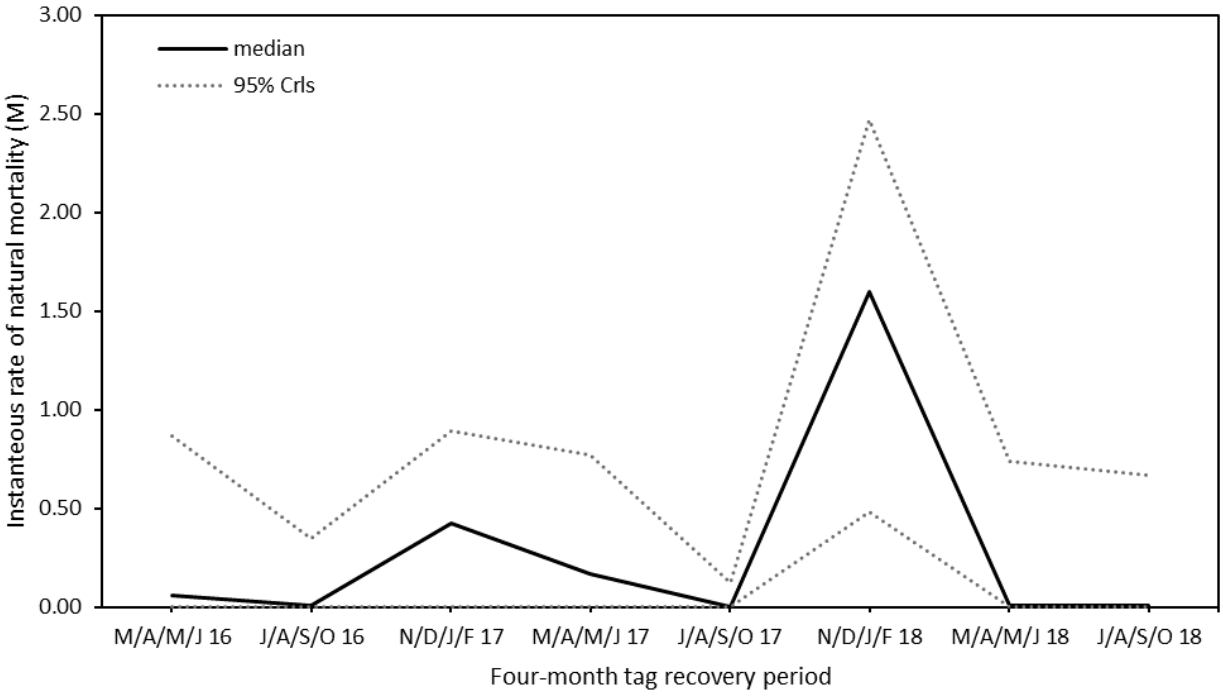

Figure 3. The instantaneous natural mortality rate estimated across eight triannual tag-recovery periods (March 2016–October 2018) from spotted seatrout tagged in North Carolina waters. Presented estimates are the posterior medians and associated lower and upper bounds of the 95% credible interval (CrI).

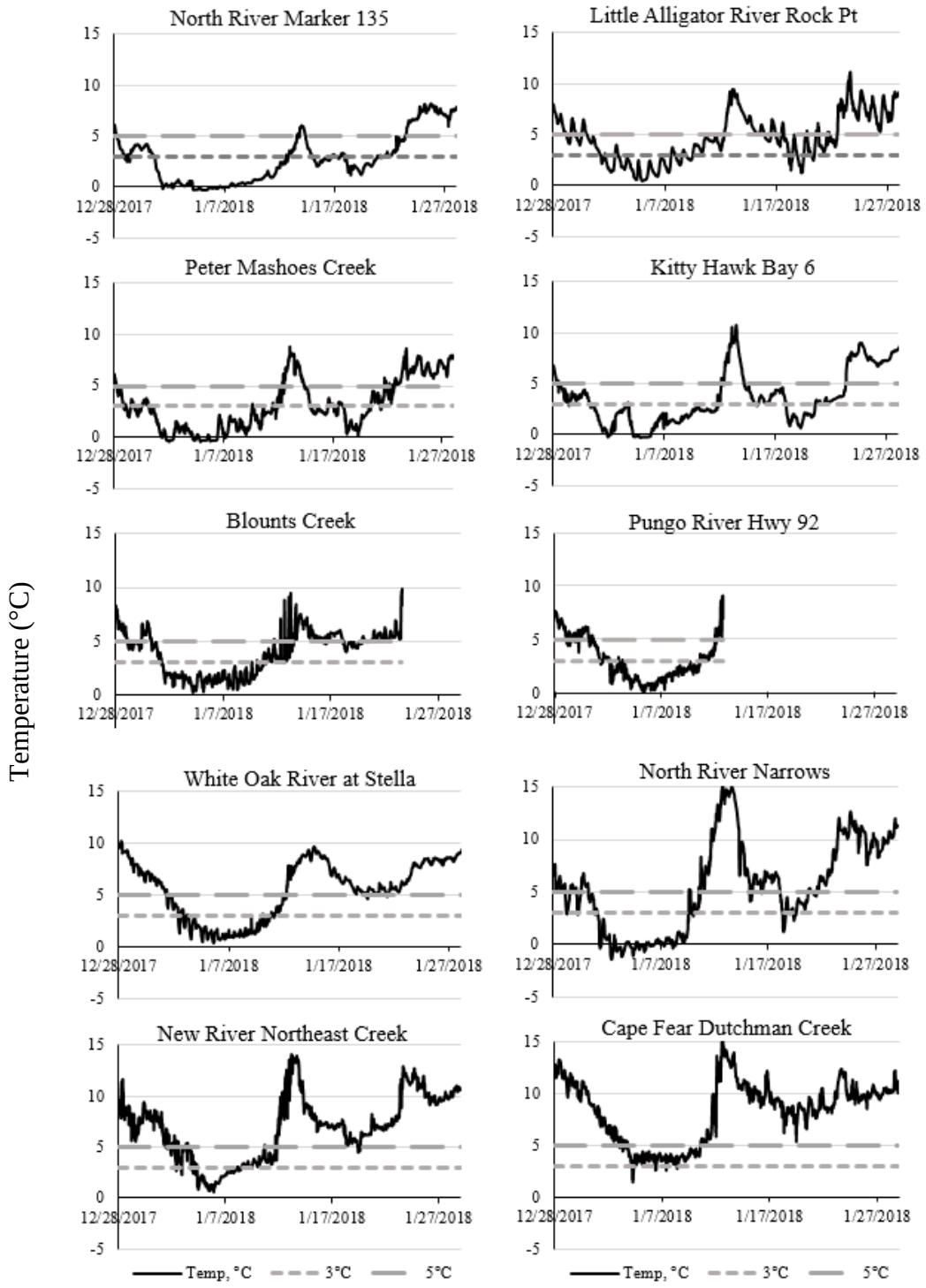

Figure 4. Water temperatures (°C) from 12/28/17 through 1/28/18 (during the period of the January 2018 cold stun) from representative stations across North Carolina, with the 3°C (short dash) and 5°C (long dash) triggers. If there were shallow and deep loggers at a station, only data from the deep logger is shown.

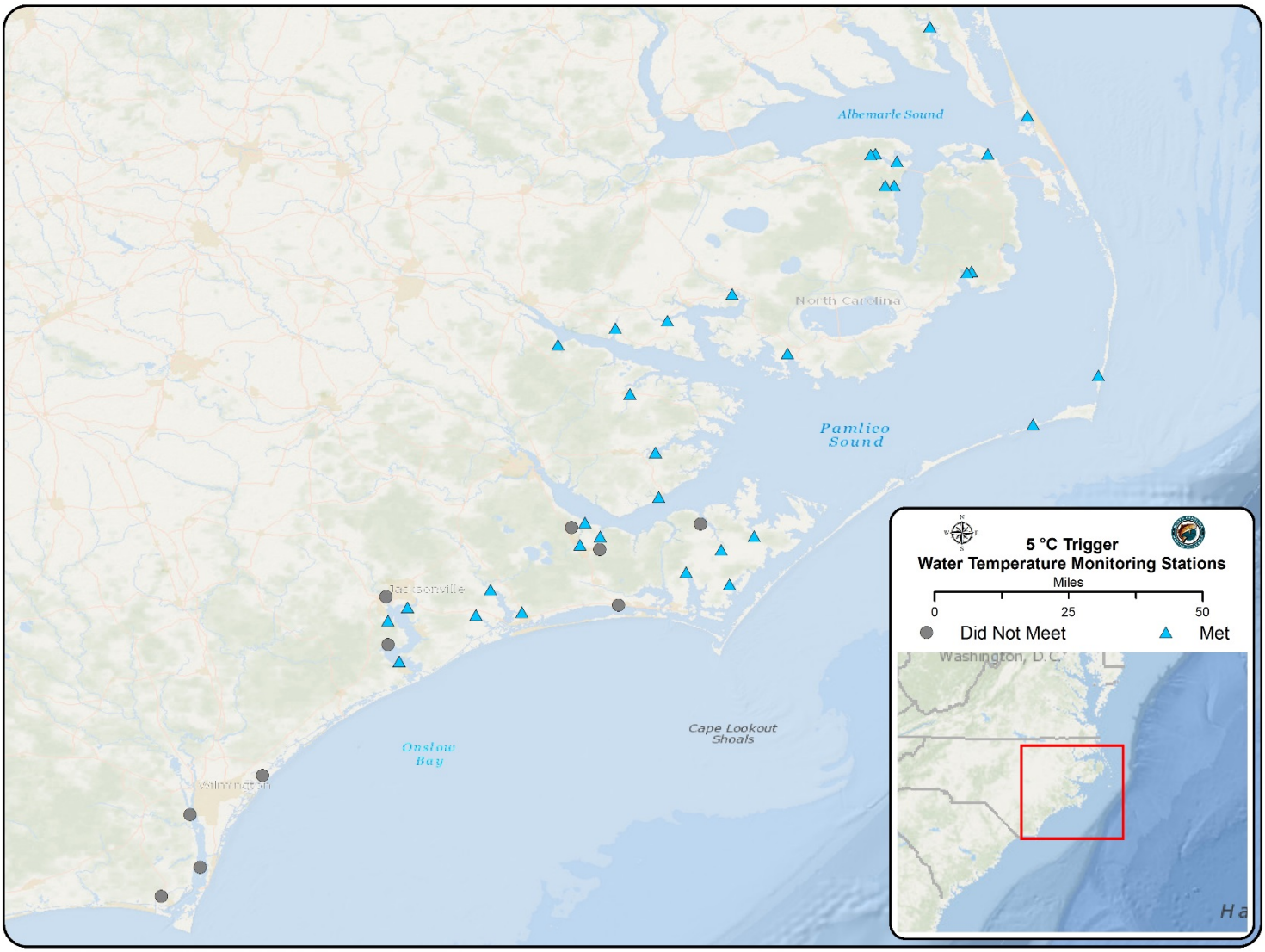

Figure 5. Water temperature monitoring stations that did (light blue triangle) and did not (gray circle) meet the 5 °C for eight consecutive days trigger for the period of December 28, 2017 to January 28, 2018.

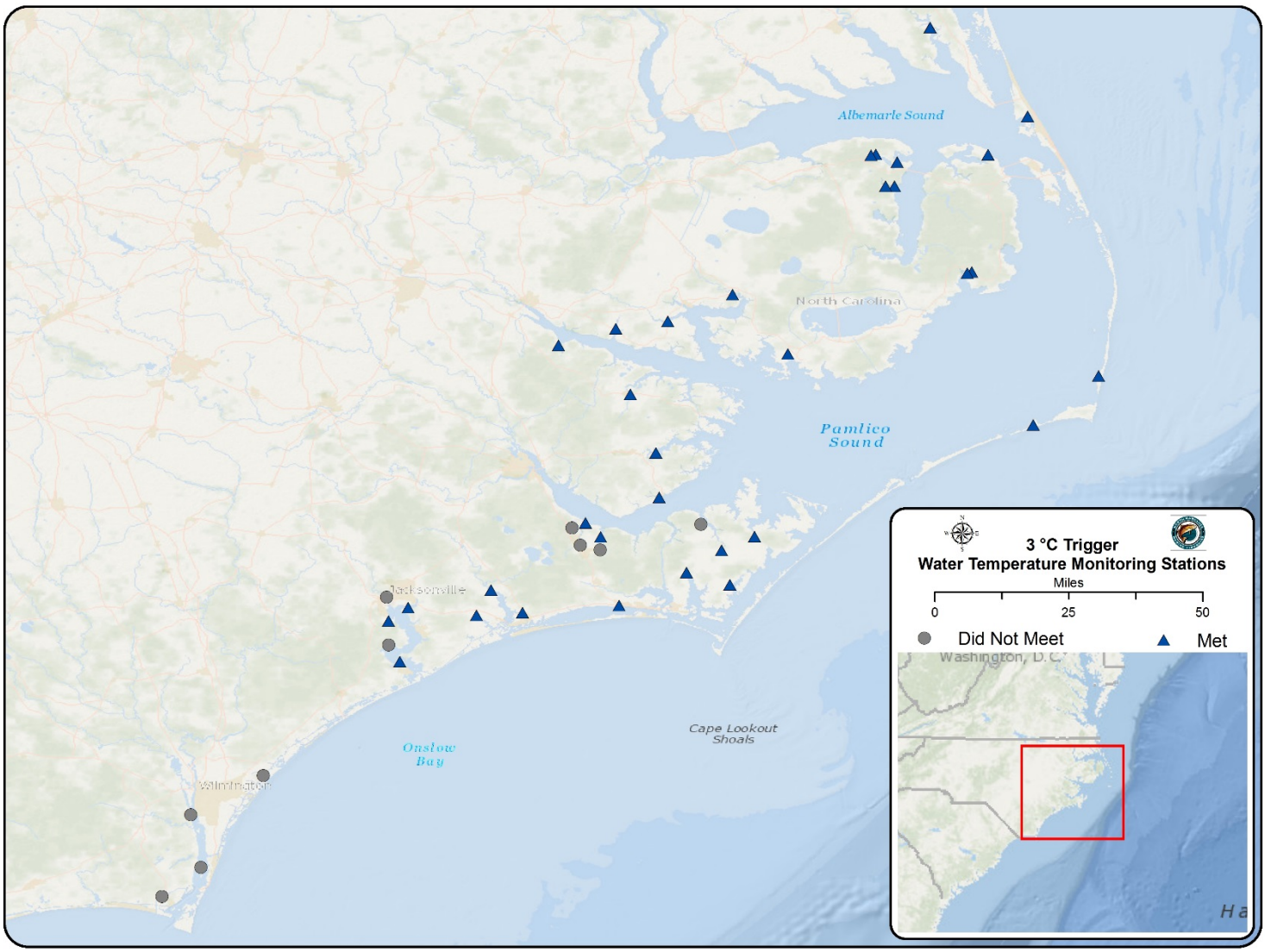

Figure 6. Water temperature monitoring stations that did (dark blue triangle) and did not (gray circle) meet the 3 °C for 24 consecutive hours trigger for the period of December 28, 2017 to January 28, 2018.

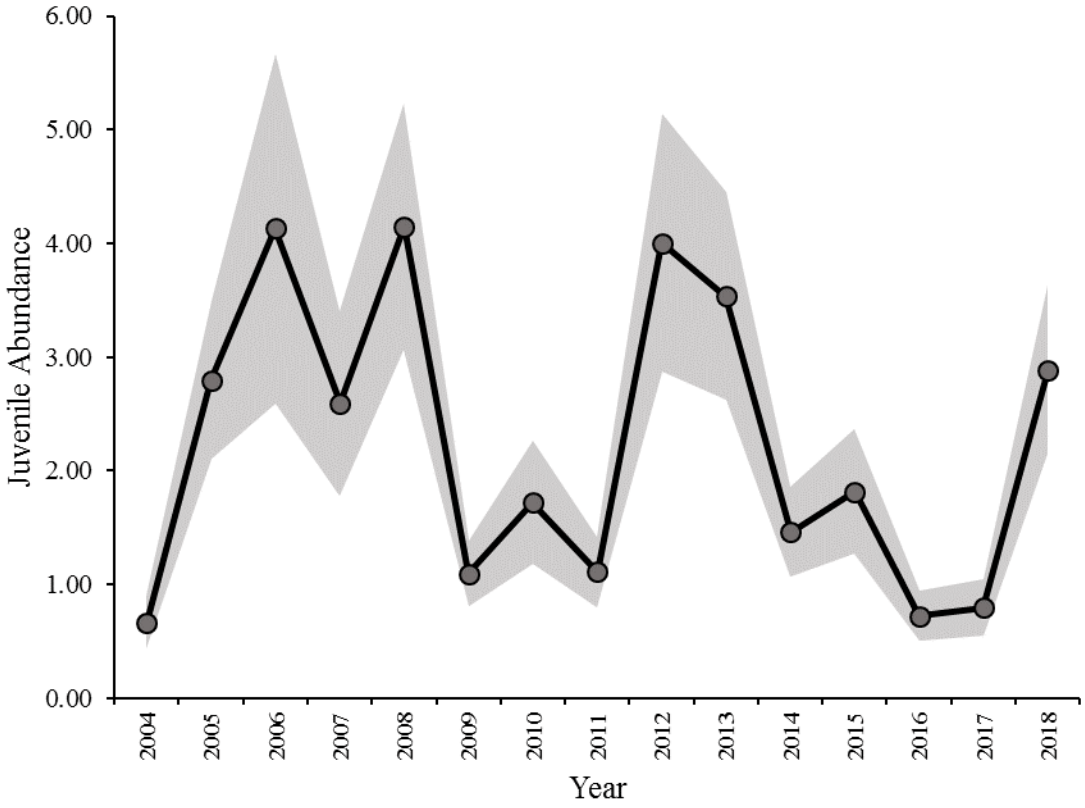

Figure 7. Spotted seatrout juvenile abundance index (average number of fish per tow) from Program 120 Estuarine Trawl Survey, June and July, 2004-2018. The shaded area represents standard error.